JANUARY 1937

COTTON

Serving the

TEXTILE INDUSTRIES

SPECIALISTS FOR 50 YEARS
IN SCIENTIFIC WELFARE PLANS

Golden Jubilee
1887 Year 1937
PROVIDENT
LIFE AND ACCIDENT
INSURANCE COMPANY
Commemorating
A HALF-CENTURY
OF HUMAN SERVICE
Chattanooga
Tennessee

PIONEERS IN GROUP
PROTECTION PLANS SINCE 1887

Volume 101.
Number 1.

COTTON

January, 1937

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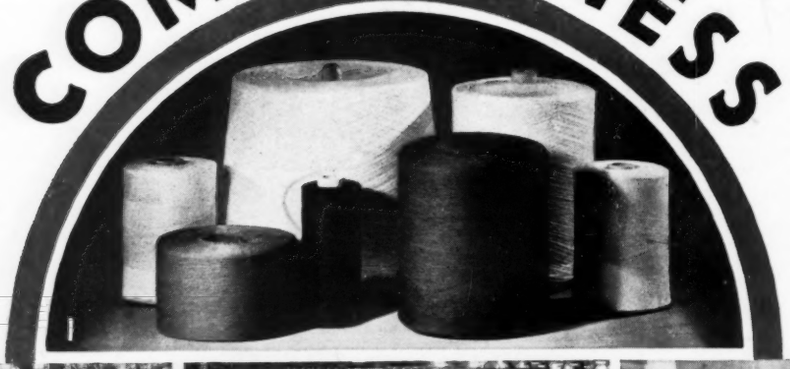
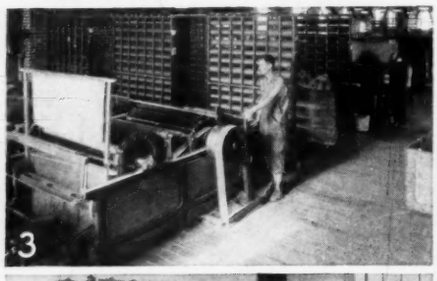
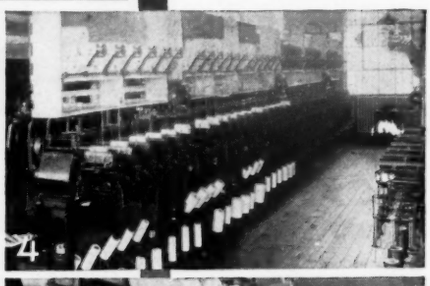
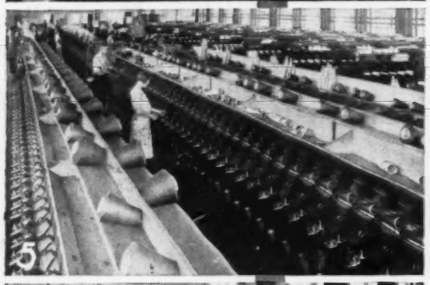
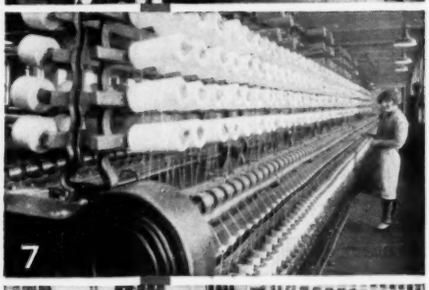
COMPLETENESS

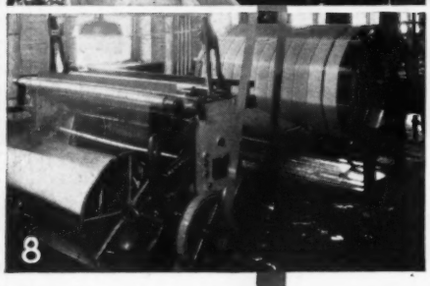


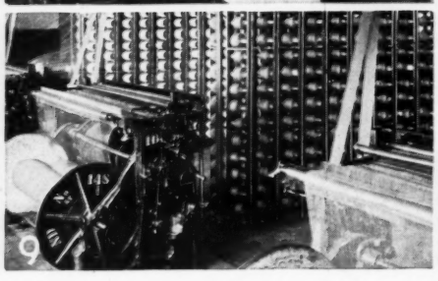


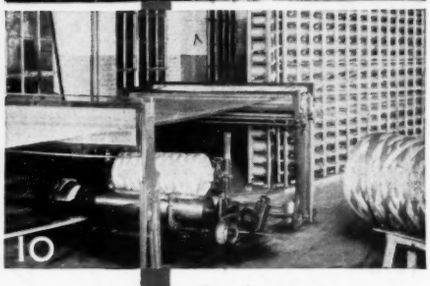












1. Natural and Colored Yarns
2. Package Dyeing
3. Glazing
4. Tube Winding
5. Cone Winding

PERFORMANCE (NOT PRICE) DETERMINES VALUE

Franklin Process Service offers exceptional value, not only because its performance is unsurpassed in quality, but also because of its completeness. It includes practically all activities that are logically related to yarns and yarn dyeing and that are economically justified by the demand.

6. Cop Winding
7. Twisting
8. Sample Warping
9. Section Beaming
10. Ball Warping Package Dyed Yarn

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • N. Y. REPRESENTATIVE, 40 WORTH ST.

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Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

From Father to Son and to Son's Sons

Our business was founded 118 Years Ago ⋄ 95 Years Ago it was located in Hopedale ⋄ 40 Years Ago the several Hopedale manufacturing companies that had sprung from that start were combined in the Draper Company ⋄ 20 Years Ago Draper Corporation succeeded Draper Company

These Important Dates

In Draper history remind us of the cordial relations through all these years we have enjoyed with members of the Textile Industry ⋄ ⋄ A Past Rich in Memories is most worth while when those Memories have living links with the present

Some of You Knew Our Fathers and Grandfathers

Some of us knew your Fathers and Grandfathers ⋄ From Father to Sons and Son's Sons there has been mutual regard and fellow feeling

We are proud of our heritage ⋄ ⋄ We are proud of the Industry we serve ⋄ ⋄ We are proud of our friends in the Industry

At the Start of Each New Year

We like to pause to dwell upon these Memories and these Friendships and vision a Future in keeping with the Past ⋄ ⋄ ⋄ ⋄ They inspire the wish that 1937 may be

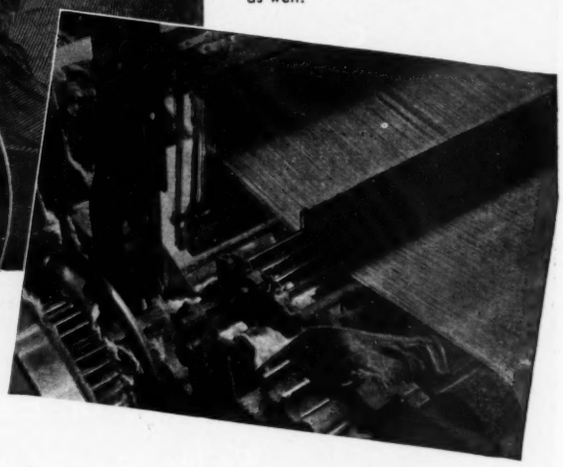
A Happy and Prosperous Year

for all our Old Friends and our New Friends in the Textile Industry

DRAPER CORPORATION

"They've done it for *others* they can do it for us!"

The more accurately a bearing is made the more important it is that you use the right lubricant to get full advantage of its efficiency.



Starfak will not only economize on power by reducing starting and running torque but it will reduce your maintenance costs as well.

LOWER starting and running torque—lower power consumption—definite advantages you get with Texaco Starfak Grease on your high speed anti-friction bearings.

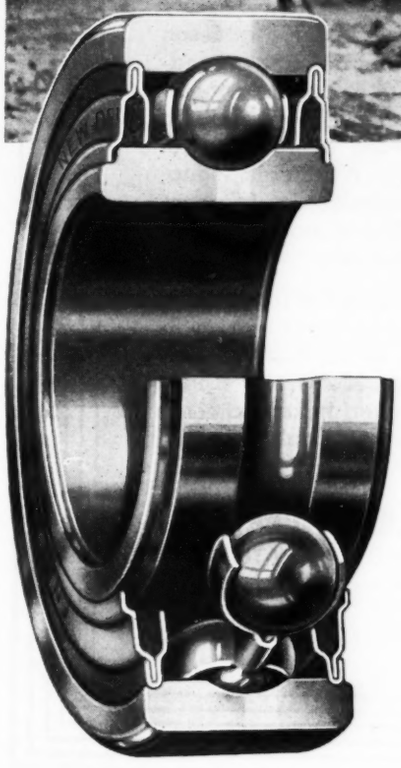
It is free from the impurities that cause bearing-drag. It does not become spongy, separate, or break down, under extremes of speed and temperature. Its lubricating qualities are not affected by long use.

Texaco Starfak is the result of intensive laboratory research in close cooperation with the makers of anti-friction bearings. It has proved its ability to save on power in *hundreds of mills.*

A Texaco representative will be glad to provide practical engineering service to prove the economies of Texaco Starfak.

THE TEXAS COMPANY
135 East 42nd Street · New York City
Nation-wide distribution facilities assure prompt delivery

TEXACO *Industrial Lubricants*



. . . and Lubricated for Life

Seven million N-D-Seals have been put into use since New Departure originated the self-sealed bearing nine years ago . . . New Departure's experience and creative engineering still give the most effective seals. New Departure, Division General Motors Corporation, Bristol, Connecticut; Detroit, Chicago and San Francisco.

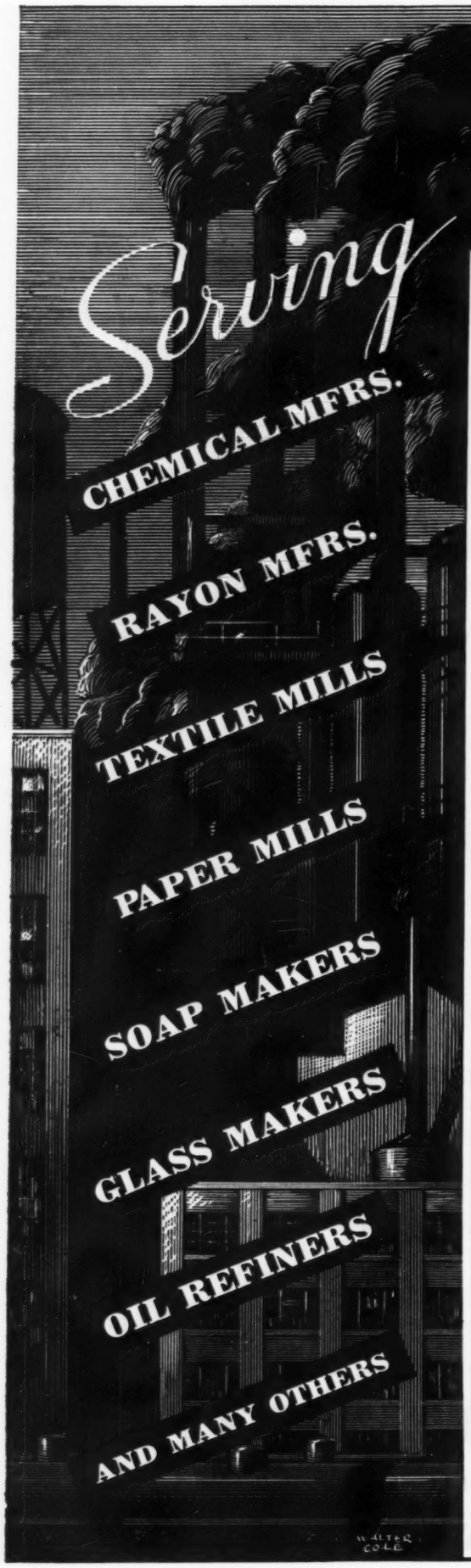
another new departure by

NEW DEPARTURE

PIONEER OF SELF-SEALED BEARINGS . . .

N-D-Seals

9506



MATHIESON

•

PIONEER PRODUCER OF ALKALI AND CHLORINE PRODUCTS

•

Forty years ago Mathieson began serving consumers of alkali and chlorine products. The intervening period has been one of revolutionary growth and progress in the American chemical industry, bringing new manufacturing processes, new methods of distribution, vast new applications for chemical products.

Throughout this period Mathieson, a pioneer producer of alkali and chlorine products, has continued to be a pioneer in new developments in the production, distribution and efficient application of heavy chemicals. Thus the name of Mathieson has steadily grown in stature as a dependable source of supply of those basic chemicals that enter so heavily into American industrial operations—the manufacture of rayon, textiles, paper, chemicals, soap, glass; the refining of petroleum and vegetable oils; the purification of municipal and industrial water supplies, etc.

Today, with a background of forty years' experience and with up-to-date plant facilities at Niagara Falls, N. Y., Saltville, Va. and Lake Charles, La., Mathieson is in a better position than ever before to serve consumers in all the principal industrial areas of the country.

The MATHIESON ALKALI WORKS (Inc.)
60 East 42nd Street New York, N. Y.

Soda Ash... Caustic Soda... Bicarbonate of Soda...Liquid Chlorine . . . Bleaching Powder . . . HTH and HTH-15 Ammonia, Anhydrous and Aqua...PH-Plus (Fused Alkali) Solid Carbon Dioxide . . . CCH (Industrial Hypochlorite)

casts a fatal shadow on profits

Raises in wages, bonuses, dividends, all added to the long depleted stock of textile fabrics, only serve to accentuate the demand textile mills will be called upon to fill. Which mills are going to show a profit on these orders? Certainly not all of them. Unless your equipment has kept pace with that installed by the most progressive mills, your costs must suffer and your profits dwindle.

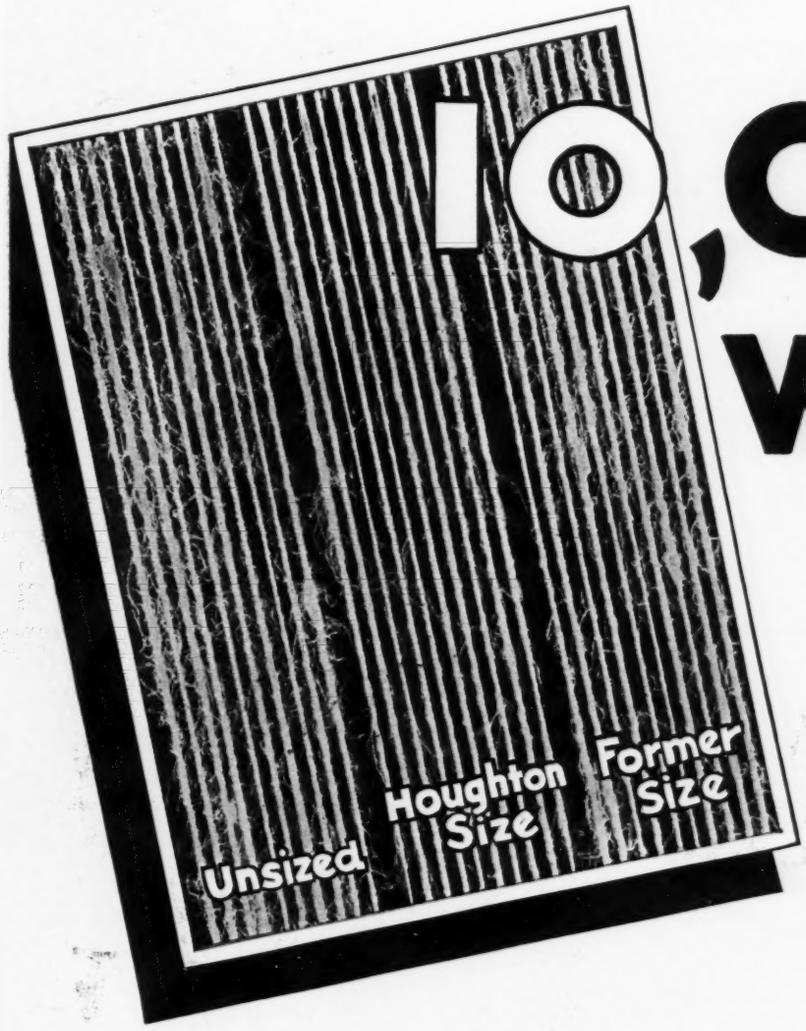
Whitin has already dispelled the shadow of obsolete equipment for scores of mills in all branches of the textile field — Cotton, Woolen, Worsted, Rayon, Silk and Asbestos. Many of them devoted weeks to planning improved and economical yarn processing with Whitin representatives. These mills, equipped with modern Whitin machines are experiencing an upswing of their own — and a profit.

We will gladly match your inquiry and your interest with facts and figures on Whitin performance in these mills.

WHITIN MACHINE WORKS

CHARLOTTE, N. C. WHITINSVILLE, MASS. ATLANTA, GA.

QUALITY
When you install new Union Specials, you know you are getting the best that money can buy . . . and time will prove that they cost less in the long run.
UNION SPECIAL DOUBLE LOCK STITCH
LOCK UNION SPECIAL STITCH
UNION SPECIAL
MACHINE COMPANY
400 North Franklin Street . . . CHICAGO, ILL.



10,000 WORDS

would not tell the story as well as this picture from a

Houghton Warp Size Check-up Test

Words are perhaps superfluous in describing the superior results obtained by:

1. **Taking advantage of the Houghton Size Check-up Test to learn if your sizing can be improved.**
2. **Using Houghton's Warp Sizing Products to do the job.**

The Houghton Warp Size Check-up Test has resulted in increased breaking strength, fewer loom stops, and increased production for many, many mill operators and owners. They have experienced less operator fatigue, greater mill production and more profit in the weave room.

Let Houghton Textile Research help you. Fill in the coupon below and send to E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Penna.

Send me complete information on Houghton's Warp Size Check-up Test.

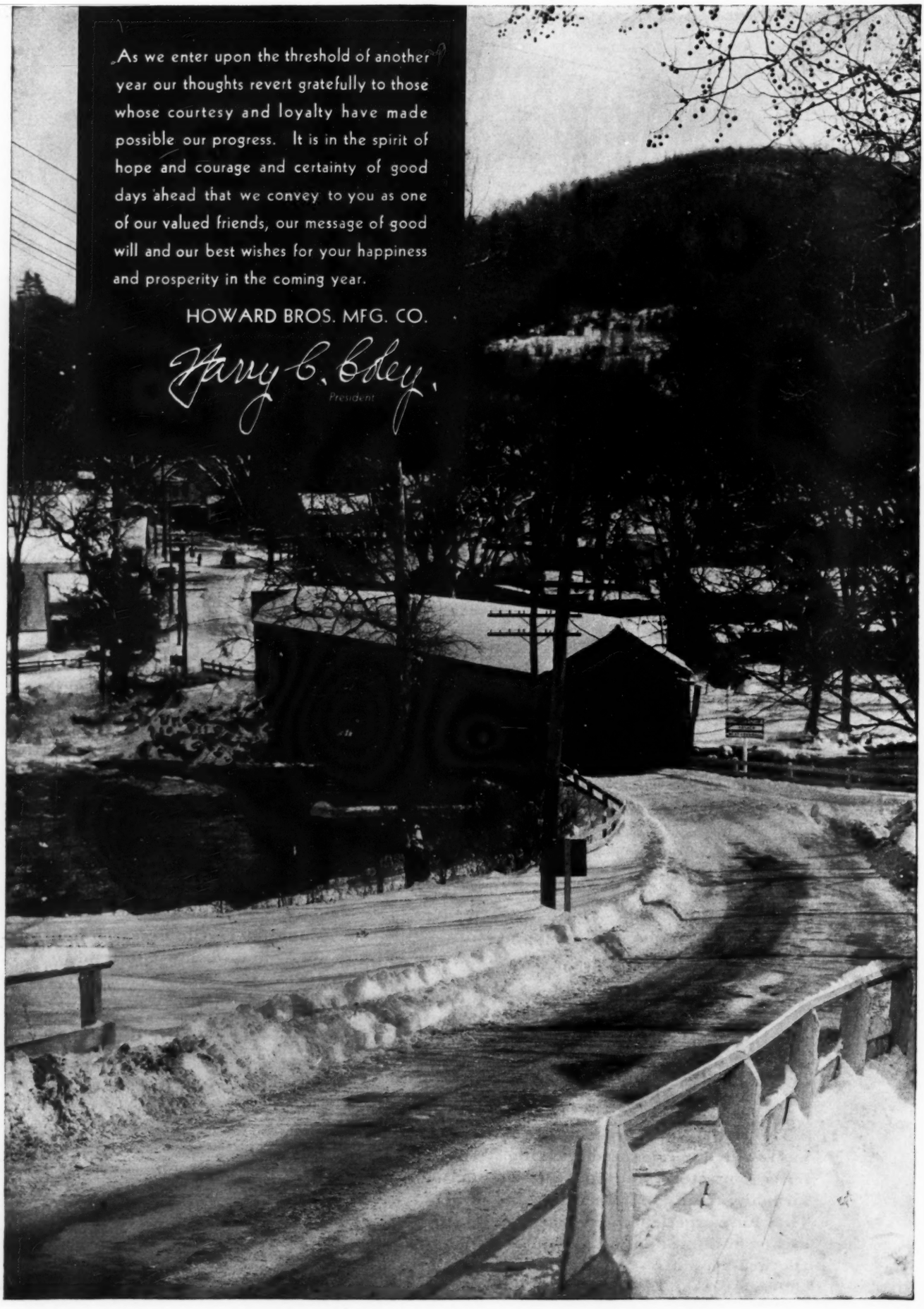
Name.....

Title.....

Company.....

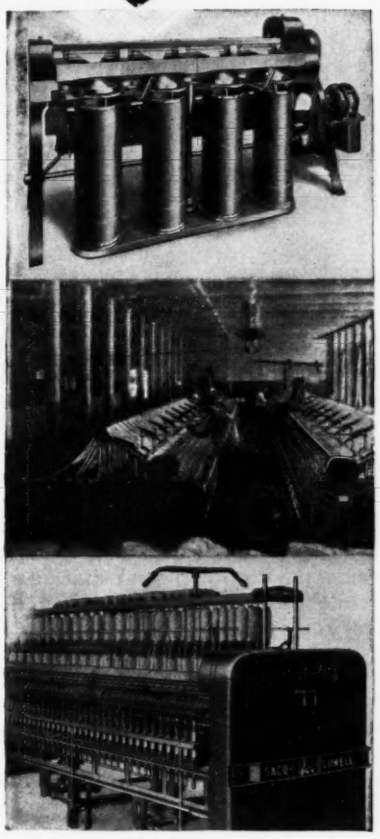
Address.....

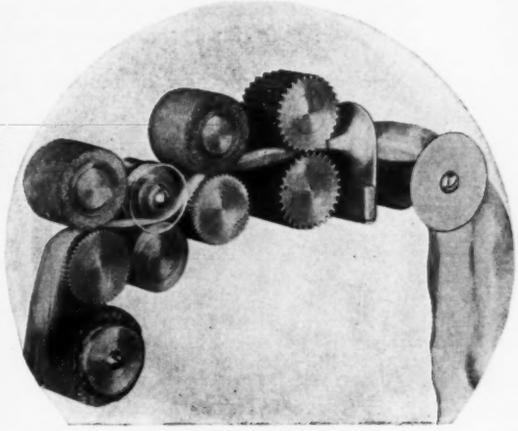
City..... *State*.....


As we enter upon the threshold of another year our thoughts revert gratefully to those whose courtesy and loyalty have made possible our progress. It is in the spirit of hope and courage and certainty of good days ahead that we convey to you as one of our valued friends, our message of good will and our best wishes for your happiness and prosperity in the coming year.
HOWARD BROS. MFG. CO.
Harry C. Bdey.
President

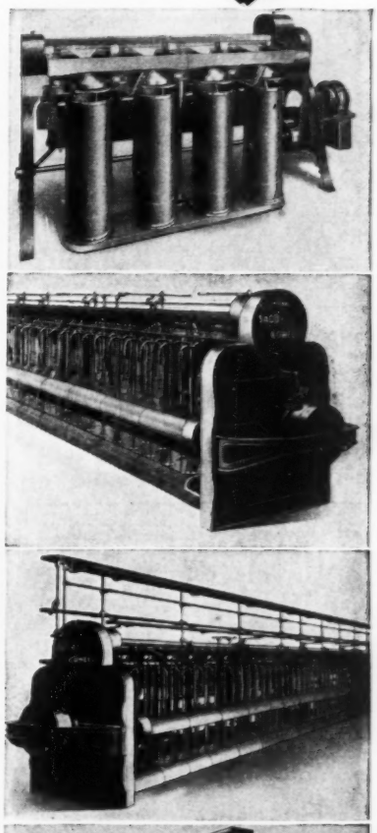
3 instead of 5

Two Roving Frame Operations *Eliminated* in this Modern Card Room Organization





Phantom view of Saco-Lowell Control Draft Roving Assembly.



The Saco-Lowell Controlled Draft Roving Process eliminates useless and costly steps in Roving Production. From drawing sliver to spinning creel in a single process is now a practical everyday accomplishment in modern mills using this "Short Cut to Profits."

Investigate These Advantages!

1 SUBSTANTIAL SAVINGS

a. In power and labor
b. In capital investment
c. In working capital
1. Generally less stock in process
2. Reduced operating expenses

2 LESS EQUIPMENT REQUIRED

a. Drafts sometimes as high as 50

b. Unnecessary handling and working of the stock eliminated.

3 QUALITY IS SUSTAINED

a. Roving as smooth and even as that made with multi-frame processes.

b. Yarns from this roving generally have as high a break factor and less variation than that made from ordinary roving.

MODERNIZE *to Economize*

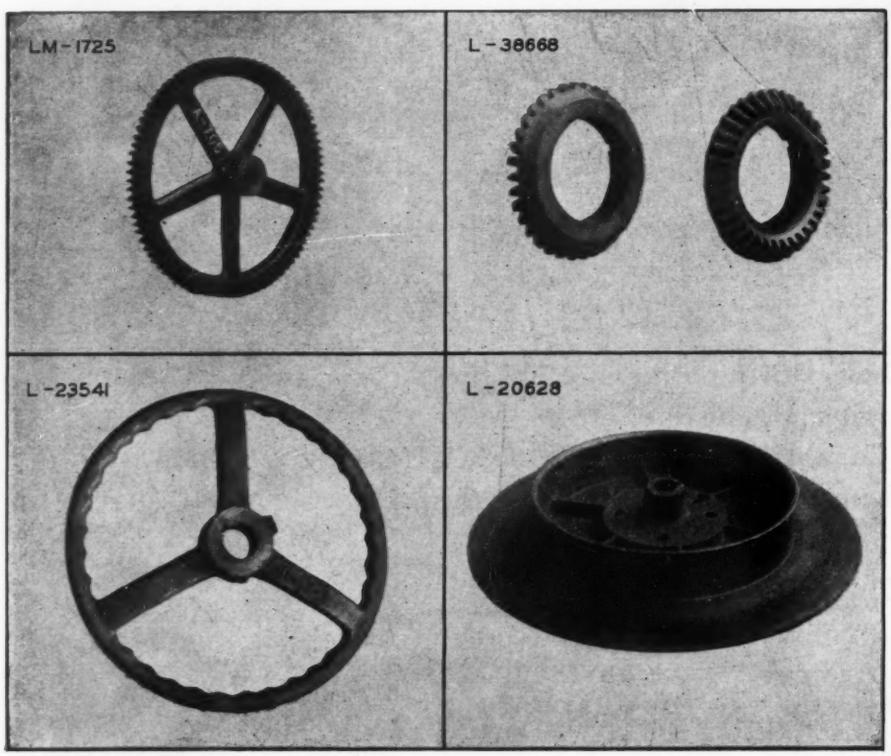
SACO-LOWELL SHOPS . . . 147 MILK STREET . . . BOSTON, MASS.

In a Year He'll Be Worn Out!

--but Machinery Can Be Kept "Young" with More Efficient Repair Parts.

Production programs for 1937 bring many problems, not the least of which is the question of machinery maintenance costs and the amount of wear and tear it will show when 1938 rolls around.

No matter how new or modern the textile machine, it cannot operate with true efficiency or stand up under the wear and tear of high speed production when many of its parts wear quickly or fit imperfectly. Why not decide now to keep your machinery "young" with the aid of more efficient repair parts?



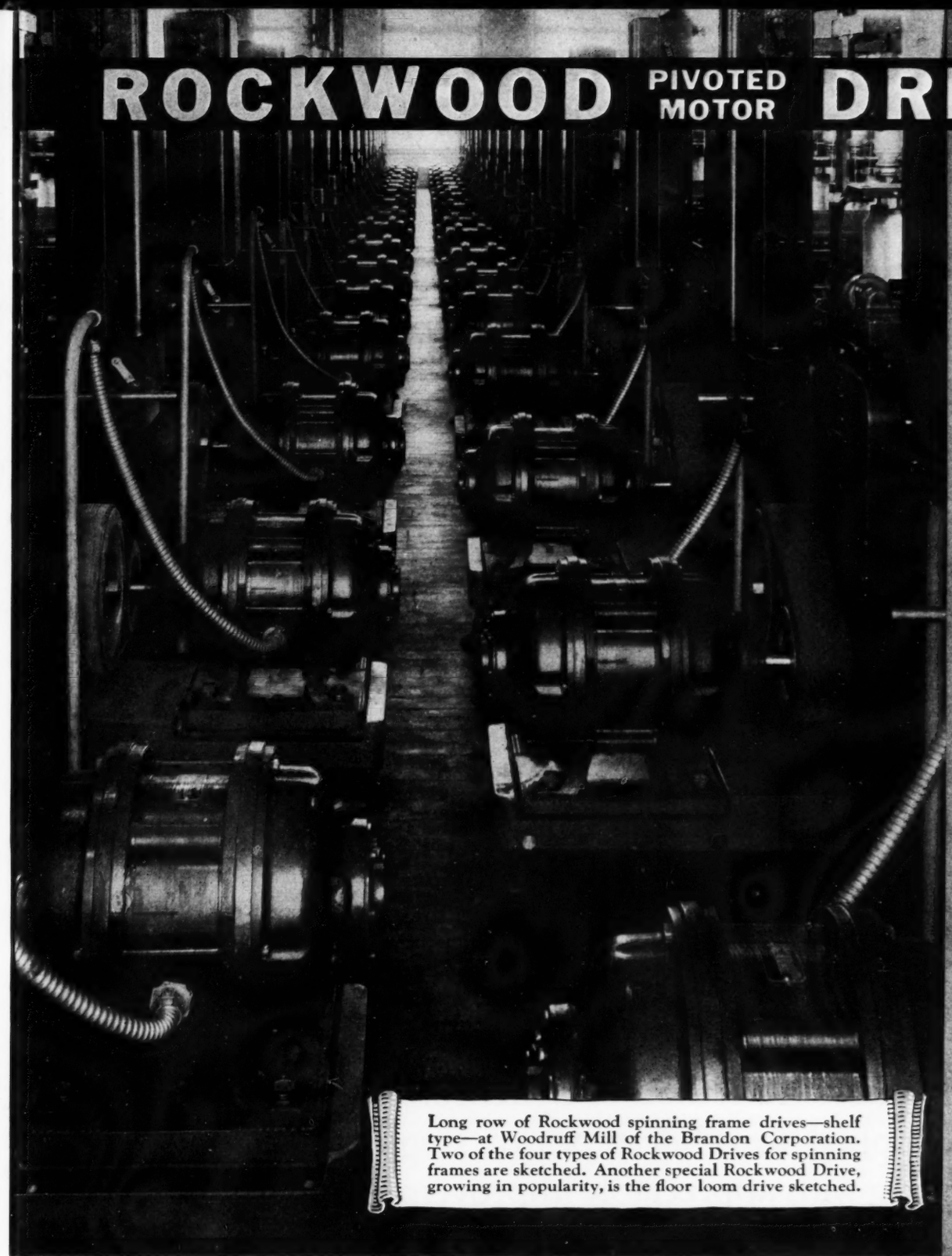
HENDERSON Textile Repair Parts are the result of careful study of modern textile equipment to ascertain the weakest points. They have that added strength at the weak spots that prevent quick wear and constant breakdown. Precision patterns are used to insure that every part fits perfectly, thereby saving much in vibration and friction. Good materials plus careful workmanship insure dependability and long life.

Let us quote prices on any part or any number of parts for any make of textile machinery.

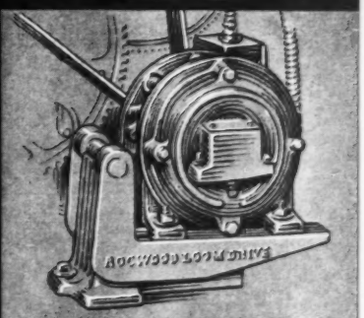
HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON, GEORGIA

HENDERSON
TEXTILE REPAIR PARTS

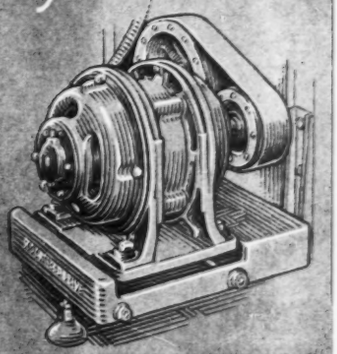
ROCKWOOD PIVOTED MOTOR DRIVES



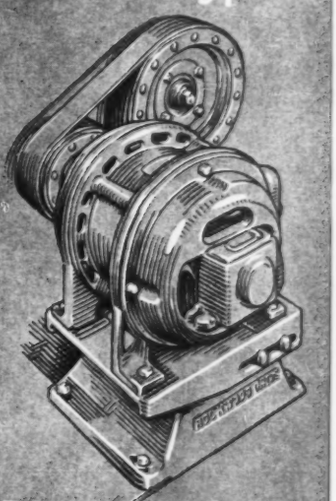
Long row of Rockwood spinning frame drives—shelf type—at Woodruff Mill of the Brandon Corporation. Two of the four types of Rockwood Drives for spinning frames are sketched. Another special Rockwood Drive, growing in popularity, is the floor loom drive sketched.



ROCKWOOD DRIVE *for* Looms



ROCKWOOD DRIVE Shelf Type



ROCKWOOD DRIVE Floor Type

"FOR THE FIRST TIME A TRULY SATISFACTORY SHORT CENTER DRIVE"

It is the opinion of many engineers and plant heads that the Rockwood Drive for the first time makes short-center motor drives truly satisfactory. In cotton textile plants thousands of installations have established Rockwood Drives as the proven standard for cotton textile machinery—*as the machine output is not only increased but of a better quality.* Outstanding in its advantages is the improvement in driven machinery performance—*as there is almost utter freedom from drive trouble and power consumption is decreased.* These are typical of the reports from the many great cotton mills that are installing Rockwood Drives continuously.

IF YOU ARE PLANNING TO BUY NEW MACHINERY—OR TO CHANGE YOUR OLD MACHINES IT WILL PAY YOU TO HAVE A ROCKWOOD ENGINEER CALL. He will point out the savings you can make. LET US HEAR FROM YOU.

Rockwood Manufacturing Company

1800 English Avenue, Indianapolis, Indiana

ROCKWOOD PIVOTED MOTOR DRIVE

The Aldrich Synchronized Single Process Picking System

IS used in more mills and on more pickers than any other system.

There must be good reasons for the overwhelming preference for the Aldrich System.

Some of these are:

It is the simplest, most logical and least expensive recognized single process system.

It makes better laps than other systems.

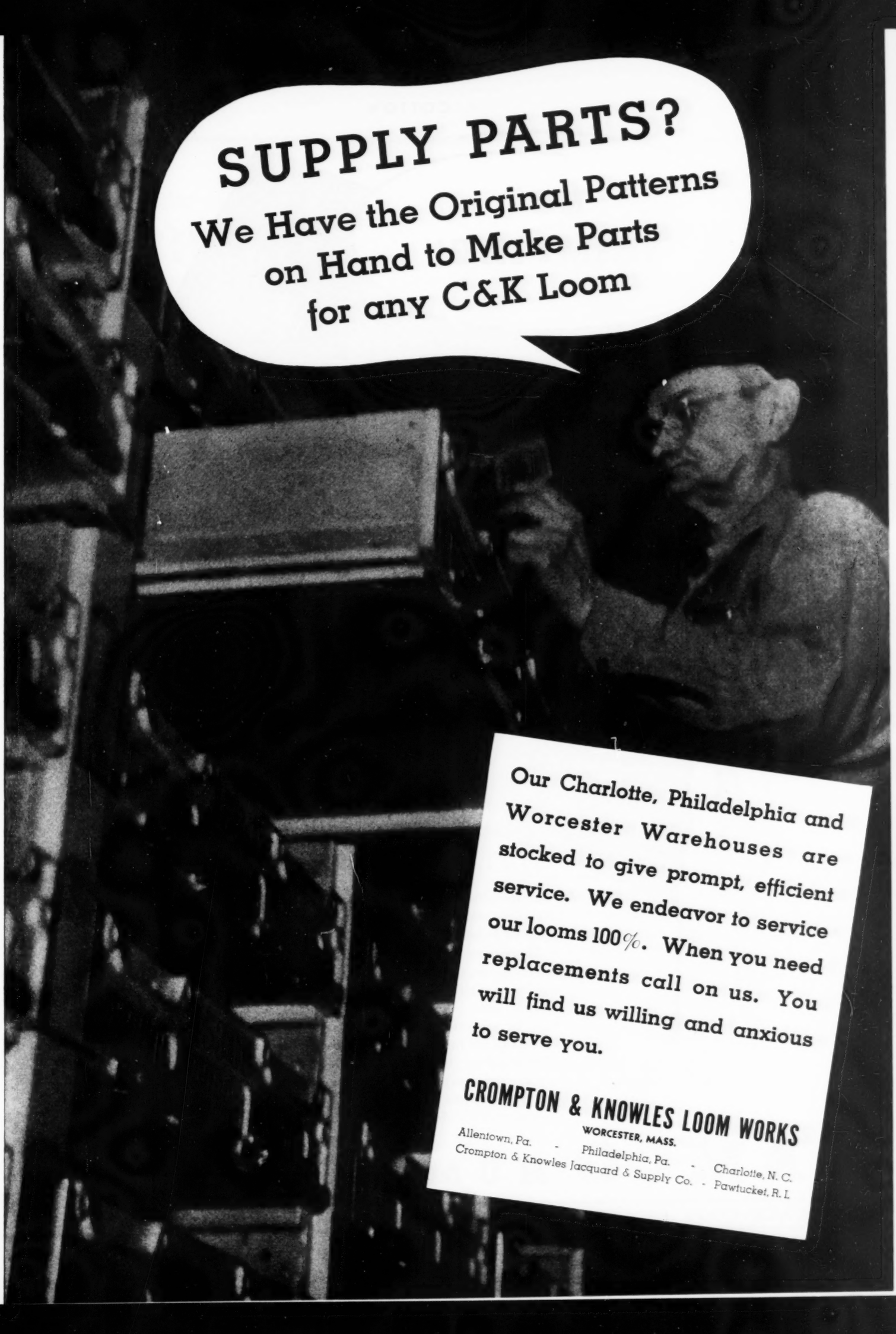
It is fool-proof—There is nothing to set or adjust.

The Aldrich Method of Synchronization can be applied to other types of single process picking with appreciable improvements in the quality of the work produced by the pickers.

Made by

AldricH MachinE WorkS

Greenwood, South Carolina


SUPPLY PARTS?
We Have the Original Patterns on Hand to Make Parts for any C&K Loom
Our Charlotte, Philadelphia and Worcester Warehouses are stocked to give prompt, efficient service. We endeavor to service our looms 100%. When you need replacements call on us. You will find us willing and anxious to serve you.
CROMPTON & KNOWLES LOOM WORKS
WORCESTER, MASS.
Allentown, Pa. - Philadelphia, Pa. - Charlotte, N. C.
Crompton & Knowles Jacquard & Supply Co. - Pawtucket, R. I.

. . . WHEN AMCO DOES THE JOB

"Skimping" on equipment — too few units, or the wrong humidifier for a certain duty — can wreck the effectiveness of the most carefully-planned humidifying installation.

There is no temptation for an AMCO engineer to "get by" with makeshifts. From the wide line of AMCO equipment, he can meet any mill condition with an AMCO tool exactly suited to the job. Schooled by years of experience in process studies of cotton, woolen and worsted manufacture, he analyzes each problem carefully, lets conditions write their own specifications for equipment required.

In this way, since 1888, AMCO has assured adequate humidification — a maintained supply of "money-making air" to meet normal and emergency conditions in every textile milling process. American Moistening Company, Providence, R. I. Boston, Mass. Atlanta, Ga. Charlotte, N. C.

AMCO HUMIDIFICATION

TAKE YOUR HUMIDIFICATION JOB TO A HUMIDIFICATION SPECIALIST

The New FLAT BOBBIN* *and* SHUTTLE*

for Faster Production of Rayon and Silk

The new U S Flat Bobbin or Quill for plain or shuttle-changing looms is light in weight yet strong and durable. Its flat construction accommodates a package 50 to 100% larger — allows considerably longer running and requires a smaller number of quills or filling bobbins per loom. In winding, a definite saving is made by using less spindles and a greater number of units per operator. Greater yarn length per bobbin saves weavers' time, allows more looms per operator, cuts down start-up and bobbin-changing marks on finished goods.

The new U S Flat Shuttle has been designed to carry the U S Flat Bobbin efficiently. It is equipped with either the Paterson or the well known Unit Tension which eliminates the use of mops, felts and elastics. With the Unit Tension, it is equally effective in either plain, box or shuttle-changing looms.

Ask the nearest U S Representative to submit samples and full particulars.

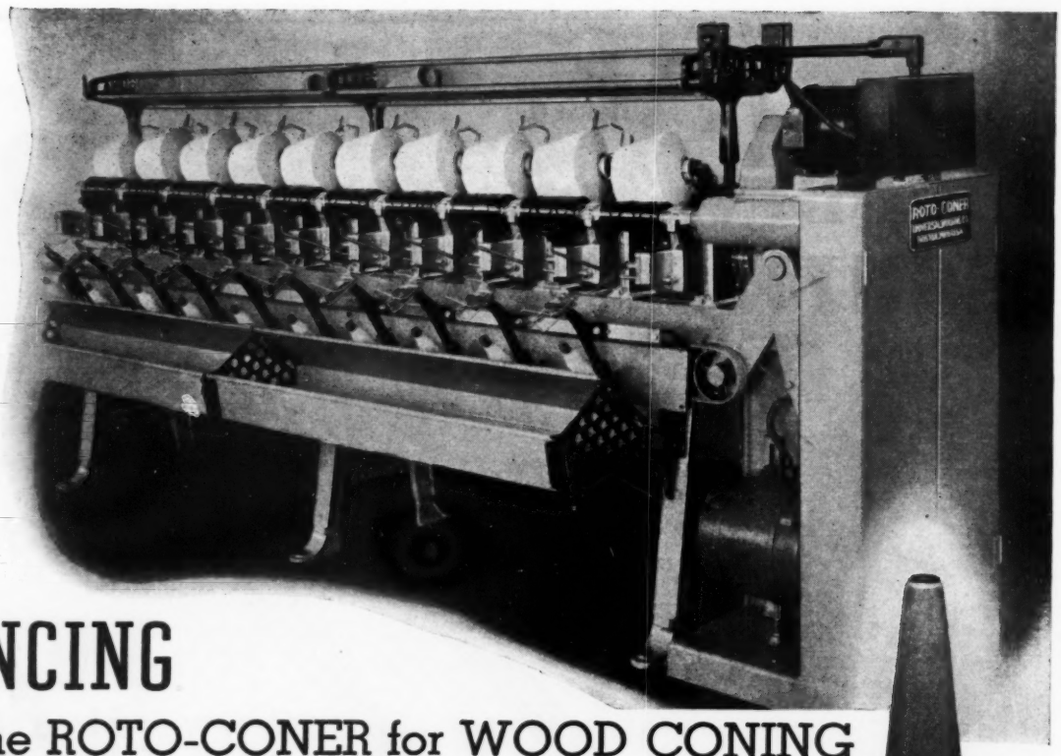
*Patents applied for

U S BOBBIN & SHUTTLE CO.

Lawrence, Massachusetts

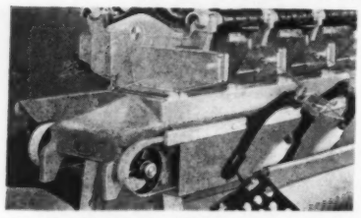
OFFICES: Providence, R. I., Manchester, N. H., Philadelphia, Pa., Goffstown, N. H., Monticello, Ga., Charlotte, N. C., Greenville, S. C., Johnson City, Tenn.
CHICAGO AGENT: Albert R. Breen, 80 E. Jackson Blvd.

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES



ANNOUNCING

The ROTO-CONER for WOOD CONING



Automatic empty bobbin conveyor for each side of the winder.

Blade slub catcher with tamper-proof adjustment and replaceable anvil. Stainless steel threading bail. The supply spindle is adjustable for any length of spinning bobbin.

Note new metal bearing on spindle. The springs hold the cone in position and permit quick doffing. The bronze bushings are replaceable.

Now the Roto-Coner, Universal's new winder of wood cones, brings weaving mills more reasons for installing the Universal System of High Speed Coning and Warping.

More flexibility, allowing the handling of several yarn counts at one time with minimum loss of machine efficiency. High winding speeds. Higher operator production. An empty bobbin conveyor for each side of the winder. V-belt drive from motors to shafts — no gearing. Lint-free construction. New slub catchers. The patented Rotating Traverse, with no reciprocating parts, eliminates the necessity of carrying emergency supply parts in stock.

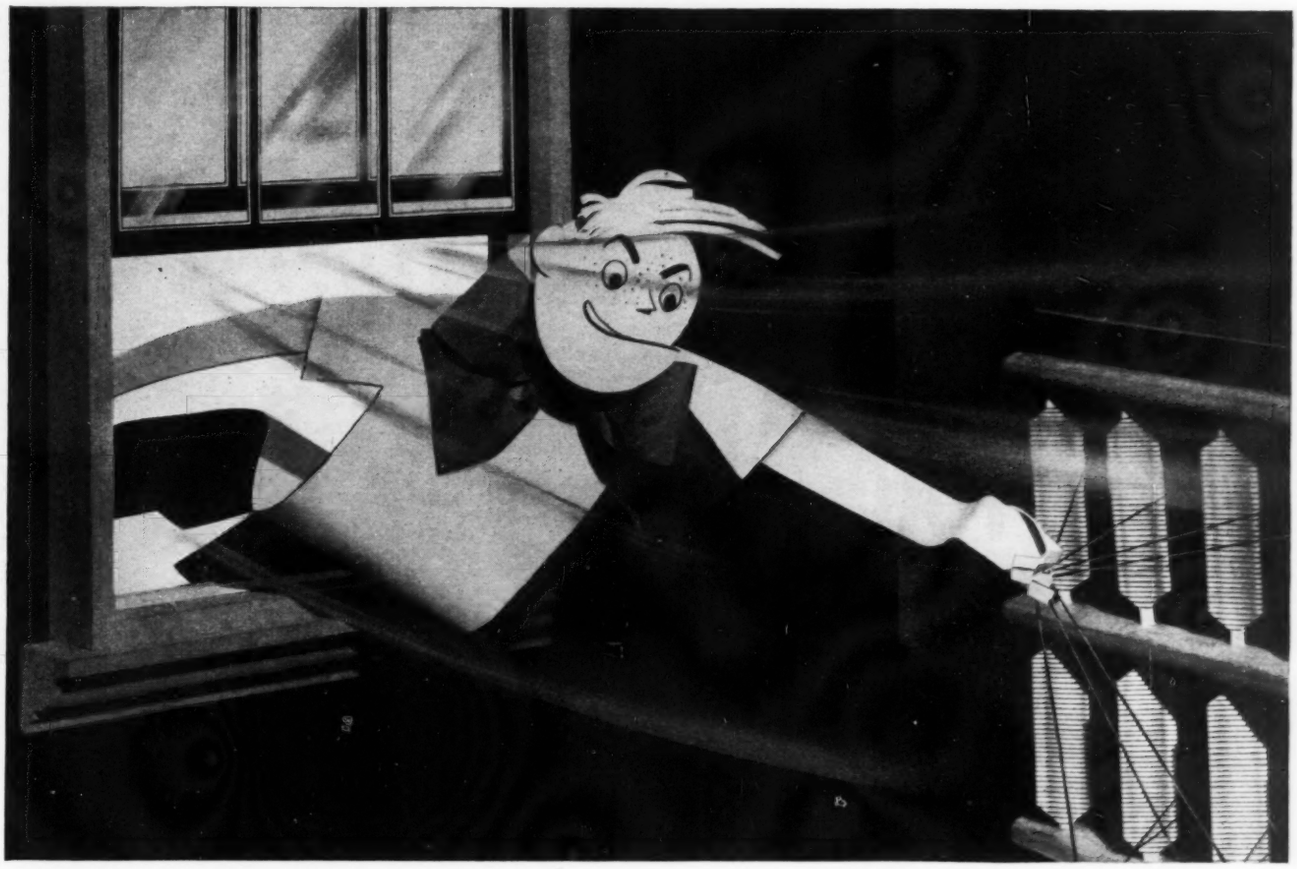
These — plus the other well-known advantages of the Universal System such as: lowest investment, depreciation and maintenance . . . flexibility in length of winding units . . . the large 4-lb. cone . . . the flexibility of the magazine creel allowing changes of yarn count with minimum time lost for creeling . . . etc. — make possible even greater savings with this system.

So, with more certainty than ever, we say, "In 3 out of 4 mills, more net return with the Universal System."

There's a new bulletin on the Roto-Coner . . . write for a copy.

UNIVERSAL WINDING COMPANY

BOSTON NEW YORK PROVIDENCE SPRINGFIELD UTICA CHARLOTTE ATLANTA



WHEN FRESH AIR GETS TOO FRESH . . .

Fresh air is fine in its place. But when it comes through spinning and weaving room windows—to lower humidity, cause spotty conditions, ends-down, seconds—it is time to *do* something.

Close the windows — and change the air with a Parks Automatic Airchanger. This system introduces fresh air, *in measured quantities,* circulates it evenly throughout the room and maintains a constant uniform humidity. Maximum cooling is provided. Working conditions are made more comfortable. Production difficulties are minimized. Quality and rate of output are improved. *Costs are cut. Profits increase.*

The installation of a Parks Automatic Airchanger is designed to utilize your present humidifying system. For complete information just mail us the coupon. We will also be glad to tell you the names of the mills where the Parks Automatic Airchanger is now helping to cut costs and improve production.

PARKS-CRAMER CO., FITCHBURG, MASS . . . CHARLOTTE, N. C.

PARKS *Certified* CLIMATE

Gentlemen: Please send me Booklet 235 on the Parks Automatic Airchanger ☐ You may have an engineer call ☐ (Please check)

Name .....

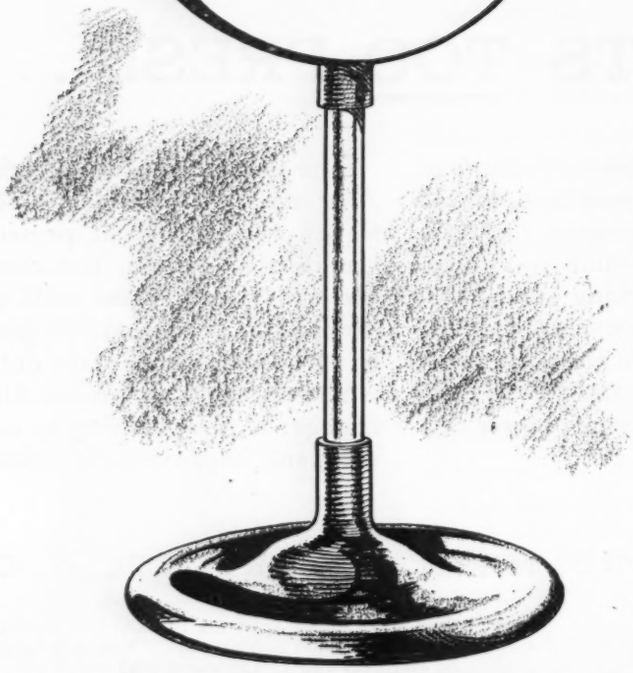
Company .....

Address .....

City ..... *State* .....

3320

PARK YOUR WARPER BEAMS HERE



THE WEST POINT BEAM RACKS prove to be an ideal parking place for Warper beams. Note this Beam Rack installation and the orderly arrangement of the Beams, as shown in the illustration! With a chain hoist and overhead track a set is soon in place on the slasher.

The double track rack on the extreme right is for empty beam storage. Also note this in the photograph.

Bring order to *your* Slasher Room! Let us design and install beam racks to take care of your Warper Beams.

Oh, Yes,—We also design and build racks for Loom Beam Storage!

May we know your requirements for something similar?

★

We are also manufacturers of special machinery, cloth room machinery, textile machinery repair parts and gears.

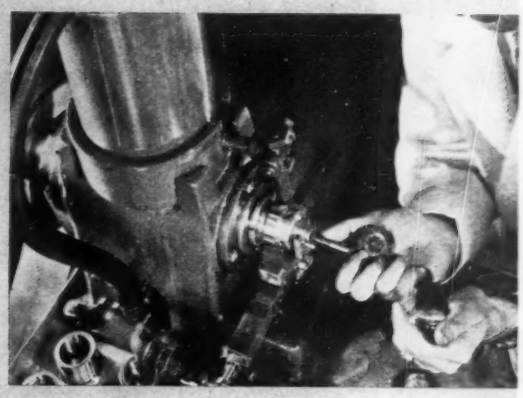
WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

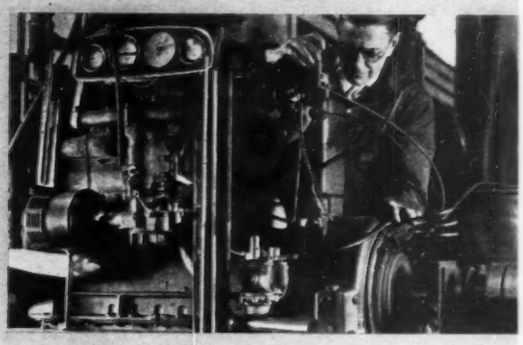
WEST POINT, GEORGIA

SO THAT MACHINES MAY LAST LONGER • PERFORM BETTER • OPERATE MORE ECONOMICALLY

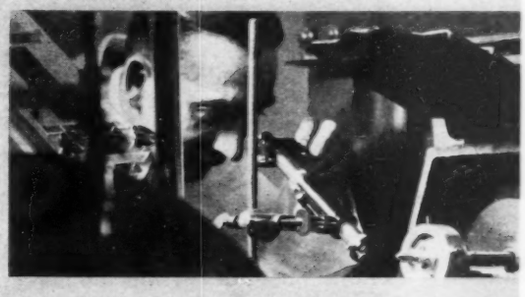
How can better lubricants be made for the great steam turbines that supply light and power for the nation? In this apparatus, turbine oil, mixed with water, is circulated rapidly with a stream of oxygen whipped thoroughly into it. Many oils have been treated with this instrument. None has shown stability equal to Gulfcrest Oil.



How high a load can a gear tooth stand without scuffing? This instrument measures the extreme pressure characteristics of a lubricant—an important property in lubricating gears with small areas of contact and high rubbing speeds.



An 8-cylinder automotive engine on the test dynamometer to determine the wear life, horsepower output, carbon formation and friction losses due to differences in characteristics of the various lubricants used in the test.



A new machine developed by Gulf engineers—the first that will test any type of bearing under precisely the operating conditions of actual service. It measures accurately friction, torque, temperature, wear and film thickness.

GULF RESEARCH IN LUBRICATION

● Last year, the ravages of friction cost American industry more than two billion dollars. Despite the great advances made in the science of lubrication, millions of dollars must be spent each year for maintenance of industry's costly machines.

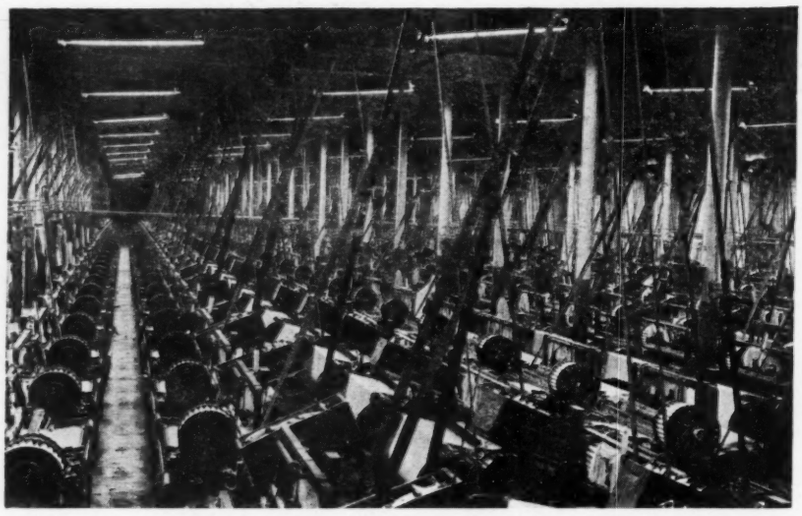
To help manufacturers save at least a part of these huge losses—that is the prime purpose of Gulf research in lubrication. Each day, in the Gulf Research Laboratories, a large staff of qualified technologists works to perfect better lubricants—to discover new methods by which oils and greases of greater endurance can be made.

Their laboratory findings—supplemented by 37 years of practical experience in lubrication—are being converted into operating benefits by Gulf engineers in scores of industrial plants. The result—to users of Gulf lubricants—is lower costs for power, maintenance and lubrication.

GULF OIL CORPORATION GULF INDUSTRIAL LUBRICATION **GULF REFINING COMPANY**

COOPER HEWITT ENGINEERED LIGHTING

Cut down your *"seconds"* with this quality light



Every thread stands out clearly in this Massachusetts mill under the revealing light of Cooper Hewitt Mercury Lamps.

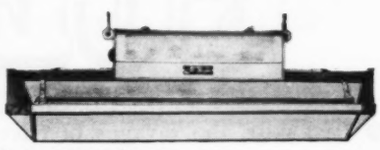
Reduced spoilage, fewer rejects, and more uniform fabrics are common benefits resulting from the use of restful, glare-free Cooper Hewitt Mercury Light. Whether the Cooper Hewitt light is used alone in operations where detail work is most important, or is combined with incandescent lamps for operations that require perception of color, the quality of this modern industrial illuminant banishes end-of-shift fag and insures maximum uniform production. The long light source of Cooper Hewitt Lamps enables textile workers to see accurately every necessary detail in minimum time.

The textile industry, today, calls for lighting engineered to each particular mill. Our engineers are prepared to advise the correct lamp for every department of your mill. Address the General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

STANDARD COOPER HEWITT

"Better than daylight" or over thirty years

COMBINATION MERCURY AND INCANDESCENT



For use where color is of importance

GENERAL ELECTRIC VAPOR LAMP COMPANY

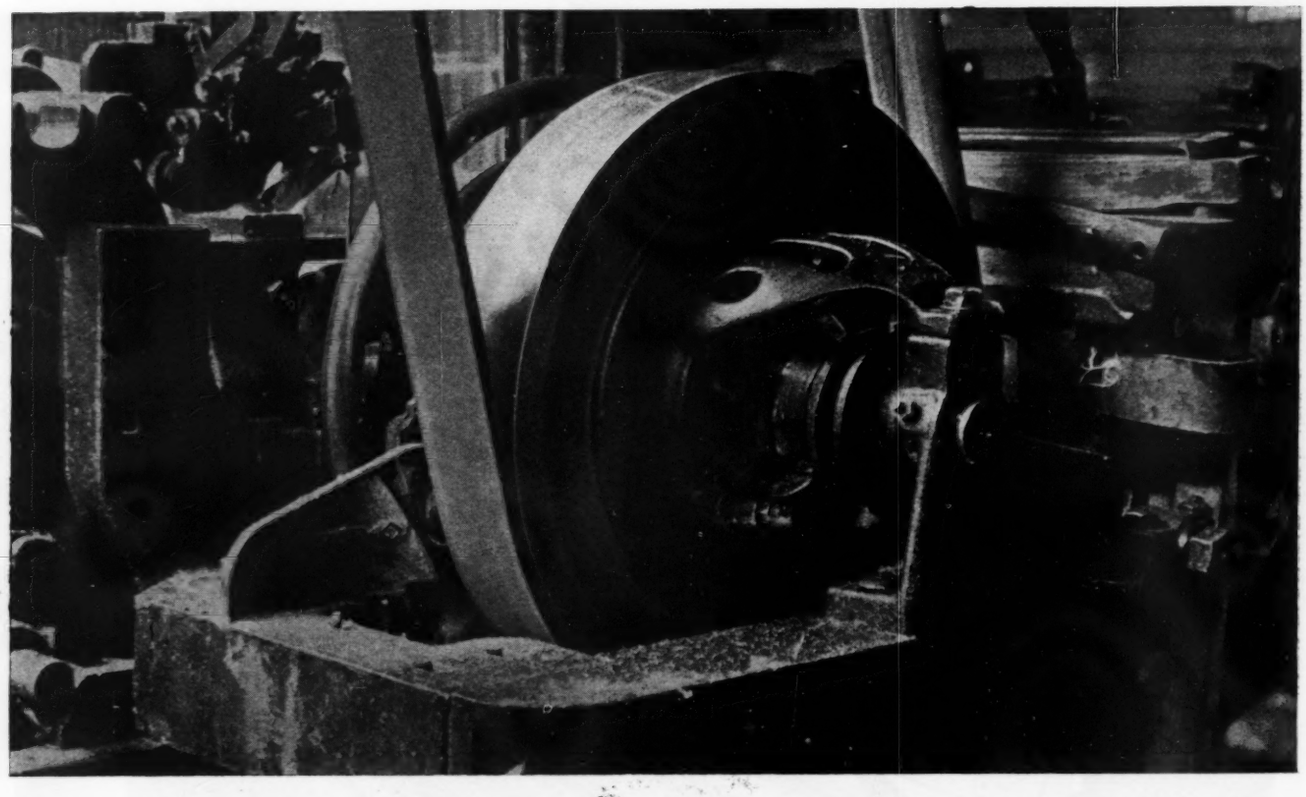
765C

What can Kable Kord do for you? Get the FREE Kable Kord Data Book, without obligation. Send today, to start saving tomorrow.

IT takes the tough jobs, to *prove* that Kable Kord has the stuff. Kable Kord likes those heavy-duty drives that show up other belts. It lasts longer, grips flat pulleys tighter, slips less, and *delivers more actual pull per square-inch than any other flat belt made.* It gives two-belt power-performance because it's built like "two-belts-in-one." That's why Kable Kord cuts costs. That's why it's a sensation!

L. H. GILMER COMPANY, Tacony, Philadelphia

Energy Drive = New Profits



Wherever it has been installed on "X" Model looms this new simple drive mechanism has increased both production and profit. More than 50 mills are now using Energy Drive in regular production or experimental tests.

A thorough-going long-term test between Energy Drive looms and Unit Drive looms, under the same conditions in actual production, resulted in greater total production and less variation in production, loom for loom, with Energy Drive.

You want to—in fact, you *must*—get higher weave room production at lower cost with same or better quality if your competitors are. And they *are* with Energy Drive. Demonstrate to yourself that this simple, inexpensive mechanism adds a new economy to the four fundamental economies of Modern Group Drive—lower investment, operating, maintenance and power costs. Let us tell you the reasons why Energy Drive makes possible greater speeds with uniform shaft rotation on "X" Model looms. Write or wire today.

POWER TRANSMISSION COUNCIL
Suite G-3, 1765 PEACHTREE ROAD, ATLANTA, GEORGIA

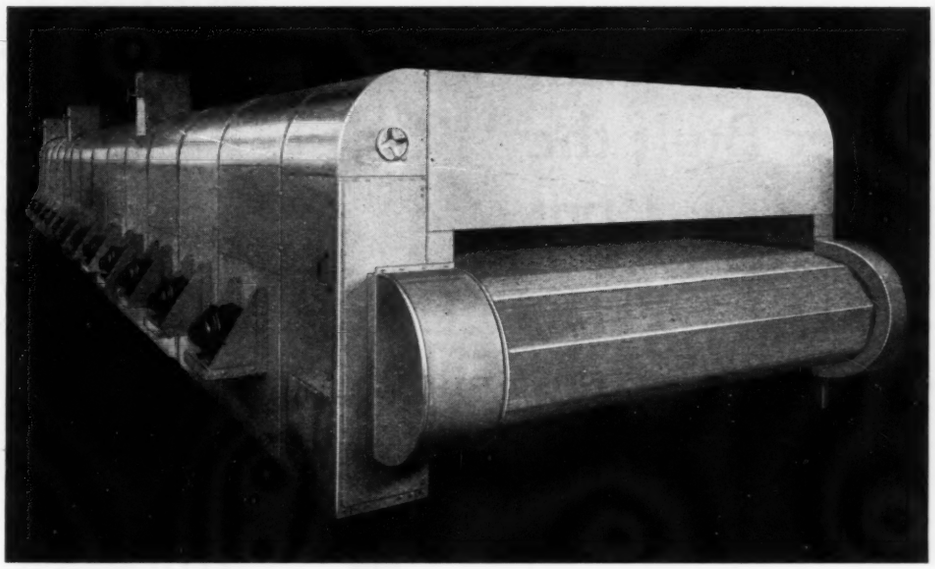
A research association of producers and distributors of power, power units and mechanical equipment for transmitting power.

Write or wire for further information

MODERN GROUP DRIVE

—the *new* efficient and economical way of transmitting power to machines

Modern Drying Equipment



One Apron Stock Dryer

NEWEST DESIGN

A leader in its field. This Sargent Stock Dryer has proven its worth to many satisfied users. This general acceptance by owners can be attributed only to the superiority of design, materials and workmanship so characteristic of these machines.

FEATURES:

Centrifugal fans, direct motor connected, New type coils, Sectional Conveyor with speed control.

--NEW PATENTED CURVED TOP--

reduces air resistance—promotes free air flow.

SARGENT PRODUCTS

Acidifying Machine—Automatic Extractor—Automatic Feeders—Backwashers — Backwash Dryers — Bagging Machines—Ball Winder—Carbonizing Dryers—Carbonizing Dusters — Cotton Stock Dryers — Crush Roll Machines—Press Roll Machines —Single Apron Dryer—Skein Dryer —Special Dryers—Wool Dryers—Wool Washers—Yarn Conditioners —Yarn Scouring Machines.

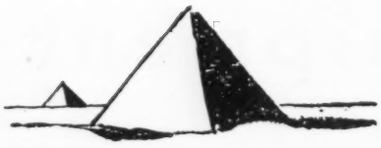
C. G. SARGENT'S SONS CORPORATION

Graniteville, Mass.—Founded 1852

Southern Agents:
Fred H. White, Charlotte, N. C.
Fred P. Brooks, Atlanta, Ga.

Philadelphia Agent:
F. E. Wasson,
Drexel Bldg.

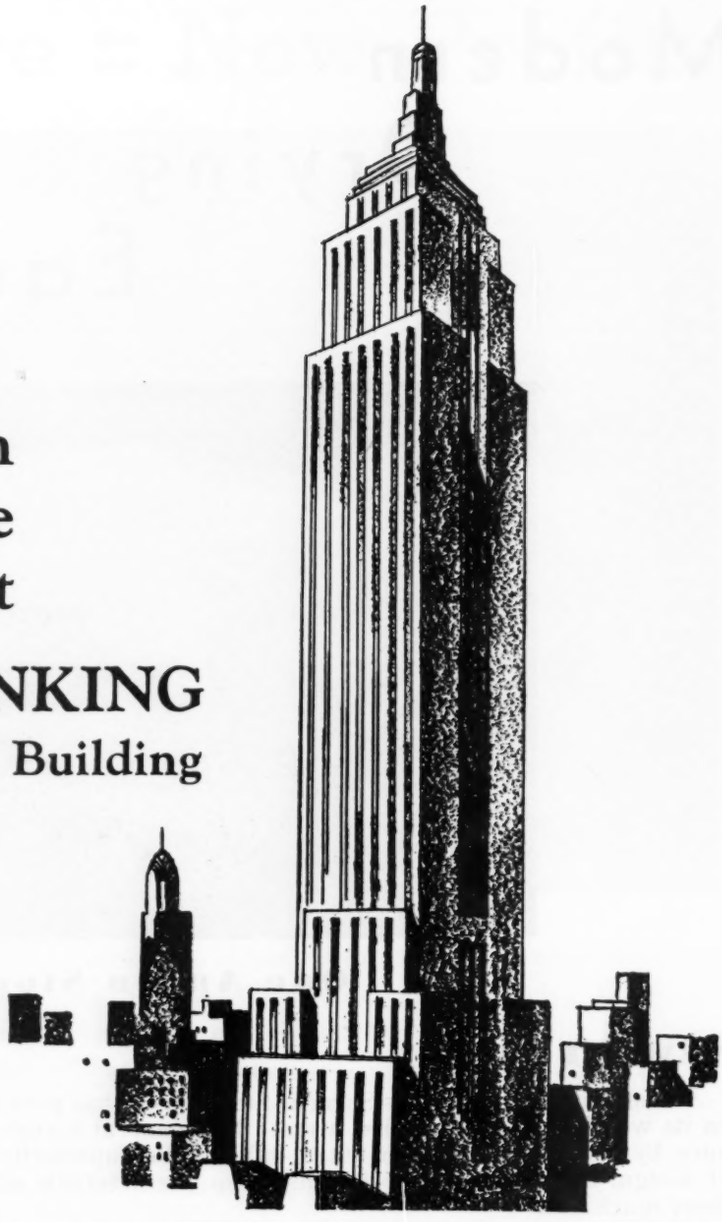
SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS



Collective Man Power Built the Pyramids . . but

COLLECTIVE THINKING

Built the Empire State Building



The Great Pyramid of Cheops, one of the original seven wonders of the world, took many years and many lives in the building; thousands of slaves provided the labor. It is an outstanding example of what collective man power can accomplish.

However, as an engineering achievement it becomes insignificant when compared with the Empire State Building which is almost three times as high, is equipped with every conceivable modern convenience; and yet required a mere fraction of the man power and time used in building the pyramid.

The Empire State Building overshadows the Great Pyramid as one of the wonders of the world; because its builders utilized something whose possibilities the ancient Egyptians did not fully appreciate;—namely, COLLECTIVE THINKING.

Collective thinking can also perform wonders in chemical processing in the textile industry. Furthermore, it is greatly needed here, because new fibres, new styles and a constantly and rapidly changing picture necessitate a versatility of knowledge and of experience that is seldom given to one man or even one organization.

A-H Consultation Service can make an important contribution to collective thinking in any textile plant on sizing, printing, or finishing problems. This service is rendered free of charge by a staff of specially trained chemists assisted by a completely equipped, modern laboratory and a company experience of 121 years.

Communicate with our nearest office and state your problem.

Arnold, Hoffman & Company, Inc.

Established 1815 — Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York . Boston . Philadelphia . Charlotte

CHEMICALS Sizing and Finishing Gums and Compounds . Soluble Gums Softeners . Soluble Oils . Tallow . Waxes . Soaps . Flour Dextrines . Starches . Pigment Colors and Lakes . Ammonia Acids . Blue Vitriol . Borax . Bichromate of Soda . Bichromate of Potash . Liquid Chlorine . Chloride of Lime . Caustic Soda (solid or flaked).

When you run into these jobs★~
★
REMOVING DIFFICULT SPOTS from PIECE GOODS, caused by water repellent preparations or wax emulsions.
★
SCOURING VERY GREASY PIECE GOODS. For example, woolens treated with mineral oil.
~ You'll thank us for this new development!
★
SCOURING RAYONS clean of oxidized mineral oils or saponifiable oils which have palmerized or oxidized.
★
PIECE GOODS RE-DYES . . to remove wax emulsions or water repellents.
★
ALL JIG WORK SCOURING

DEWAXIT

These are not ordinary problems. They're often tough jobs when you face them.

Neither is DEWAXIT an ordinary, routine scouring adjunct. It is specially developed for difficult work.

DEWAXIT is easily emulsifiable in water and alkaline solutions. Used in conjunction with your regular scouring bath, it goes to work on oils, fats, greases, water repellents, wax emulsions—and quickly, thoroughly removes every trace. DEWAXIT is particularly effective in removing rancid or oxidized oils . . . in fact, ALL stains and oils of a greasy nature.

Write for a sample of DEWAXIT. Tell us your problem. Full instructions will be sent.

Onyx Oil & Chemical Co., Jersey City, N. J.

Specialists on Finishing Materials

Southern Repr.: E. W. Klumph, Charlotte, N. C.
New England Office: 100 Fountain St., Providence, R. I.
Midw. Repr.: Maher Color & Chemical Co., Inc., Chicago.

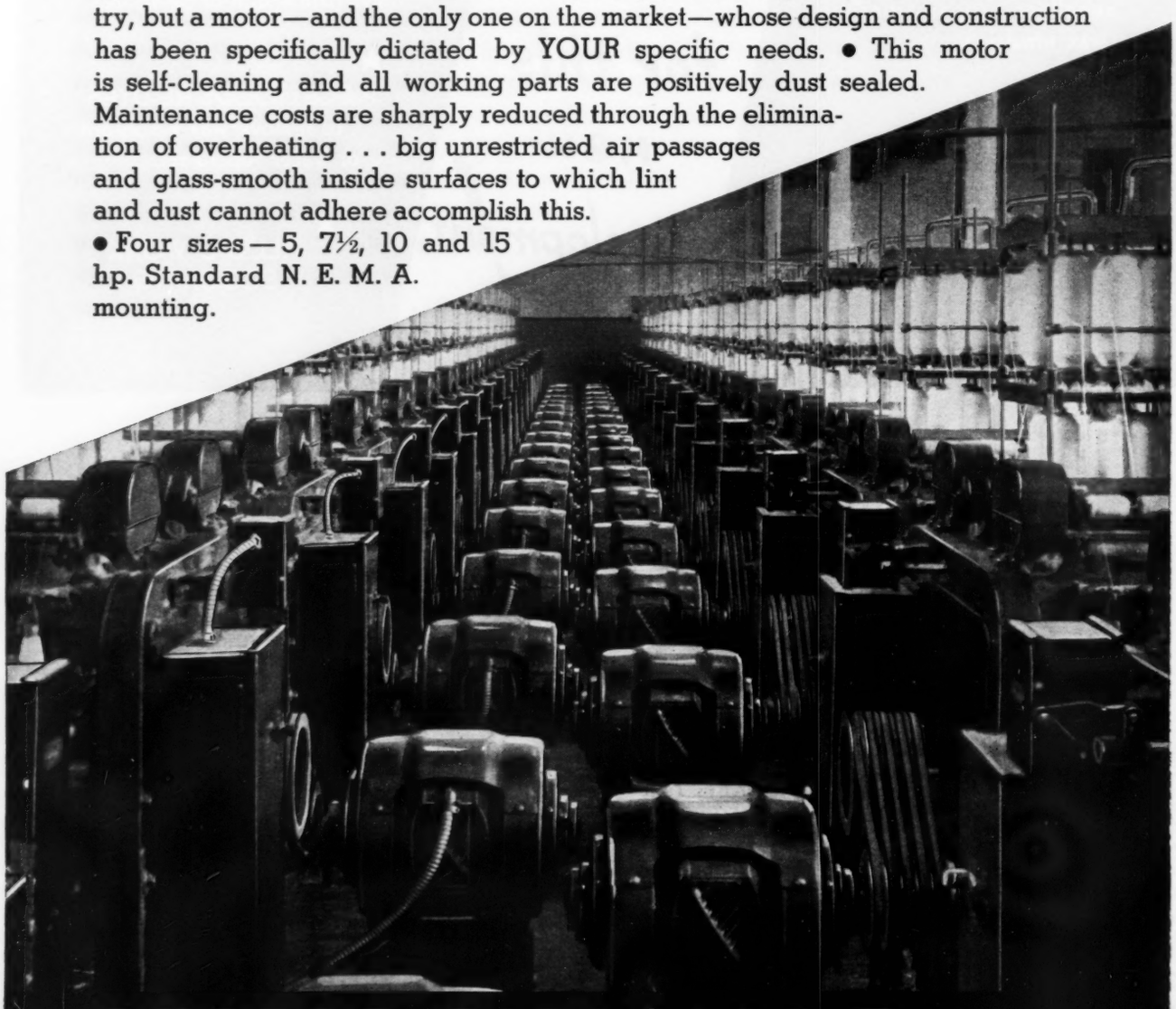
Onyx LABORATORY-CONTROLLED PROCESSING & FINISHING COMPOUNDS

Your Needs ..

DICTATED OUR DESIGN

The motor needs of the Textile Industry dictated the design of the Allis-Chalmers Quick-Clean Motor. • This is not an ordinary motor adapted to the Textile Industry, but a motor—and the only one on the market—whose design and construction has been specifically dictated by YOUR specific needs. • This motor is self-cleaning and all working parts are positively dust sealed. Maintenance costs are sharply reduced through the elimination of overheating . . . big unrestricted air passages and glass-smooth inside surfaces to which lint and dust cannot adhere accomplish this.

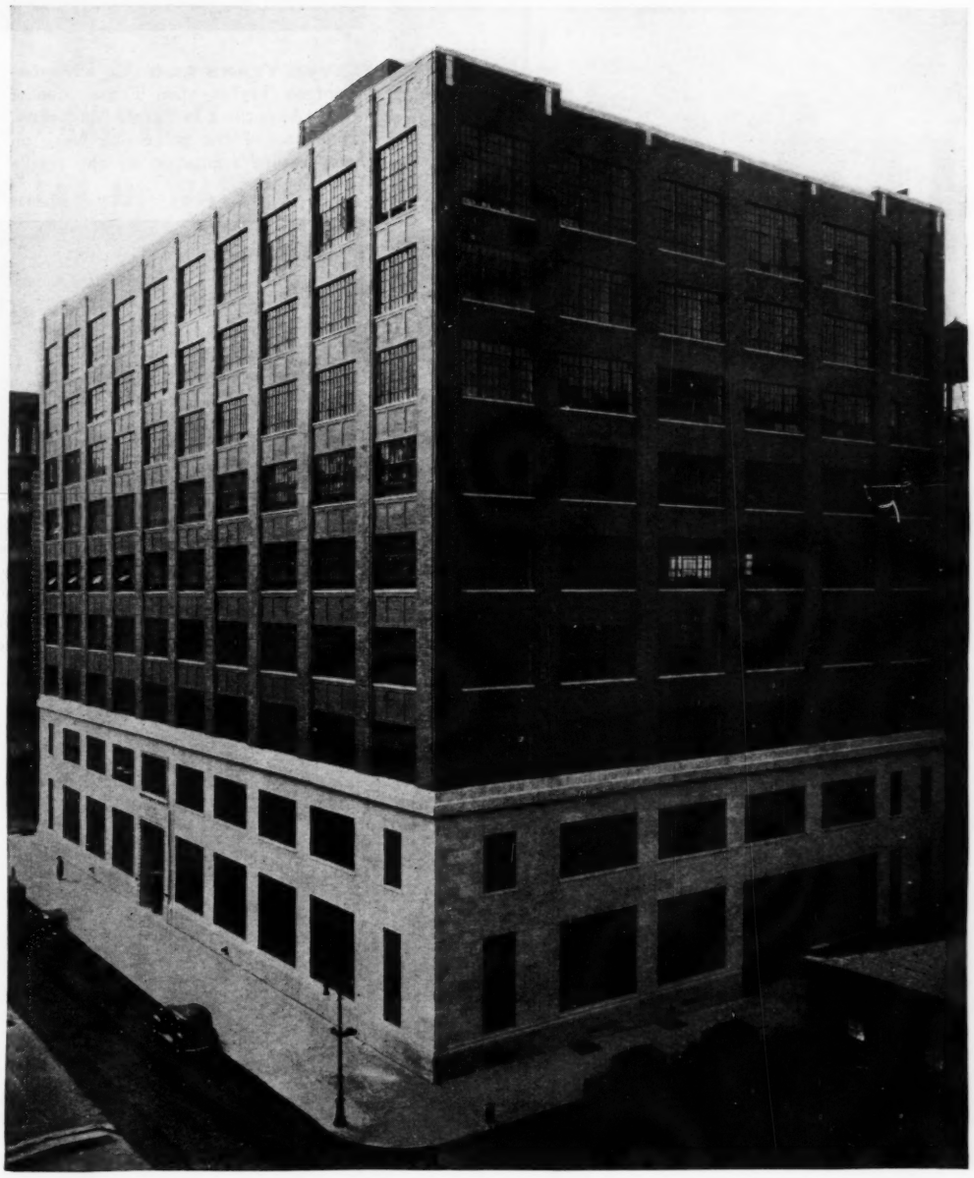
• Four sizes — 5, 7½, 10 and 15 hp. Standard N. E. M. A. mounting.



MOTOR DIVISION

ALLIS • CHALMERS

MILWAUKEE WISCONSIN



ANNOUNCEMENT

IT IS with pleasure that we announce our new address. Here, under one roof, equipped with every modern facility for efficient service, are combined the GDC offices, laboratories, warehouse and shipping rooms. From these new quarters GDC now offers its customers the advantages of a complete line of dyestuffs for wool, cotton, silk, rayon, paper, leather, paints, dry colors, resins and various other trades using colors or allied products, backed by a comprehensive technical service for their application. GENERAL DYESTUFF CORPORATION, 435 Hudson St., N. Y.

WASTE moves out of the slasher room

SEVEN YEARS AGO this advertisement on Taylor (then Tycos) Slasher Control appeared in Textile Magazines. It is part of the pioneering work on temperature regulation in the textile industry.

SIZE COOKING that's free of STEAM SHACKLES

Even the most expert of manual control in size cooking can hardly expect to cope with the vagaries of the steam. Steam is as variable as the weather. What is a correct cooking period one day may be woefully inadequate another.

Which all goes to illustrate the decided usefulness of *Tycos* Automatic Slasher Control. This system which controls cooking, application and drying, prevents costly mistakes. An unerring hand guides the entire process from size kettles, onward through size boxes and large and small drying cylinders. Instead of erratic results from day to day—you obtain uniformly sized warps that reduce loom breaks substantially and shed but little in the loom.

Call a halt on slashing waste. Here is an obvious road to substantial savings. So confident are we of the ability of this system to save that we actually guarantee a minimum saving in loom breaks. Its record in other mills has prompted us to make this unusual offer.

Every mill man should know about the profitable results obtained by using the *Tycos* Slasher Control System—what it is doing in other mills like your own. Write today for further information.

Taylor Instrument Companies

ROCHESTER, N. Y., U. S. A.

Canadian Plant: Tycos Bldg., Toronto

Atlanta Office: 405 Rhea Allen Building, Atlanta, Georgia

Boston Office: 141 M.h Street, Boston, Mass.

Manufacturing Associates in Great Britain: Short & Mason, Ltd., London

SLASHER CONTROL SYSTEM

Tycos for Guaranteed Results

MILLS have been waging war on waste for many years—with the aid of the Taylor System of Automatic Slasher Control.

The advertisement reproduced on this page appeared seven years ago in textile magazines. For over ten years Taylor engineers have been helping mill executives effect slashing economies, speed up the process, and produce uniformly conditioned warps through accurate temperature regulation.

Mill after mill today can bear testimony to the efficiency of Taylor Slasher Control. Through substantial savings, this Control pays for itself quickly and begins to earn dividends through increased production from the looms and more uniform cloth weights.

Taylor offers your mill the experience of all these years in dealing with every phase of Slasher Control. Its engineers have a knowledge of slashing problems that can come only from many first-hand contacts with textile mills of all sizes and kinds. The service covers a complete survey of your present slasher set-up and specific recommendations on instruments and their installation. Every mill is considered a special problem. After installation the system is tested and checked to see that it accomplishes the results desired and promised.

For complete information on Taylor Automatic Slasher Control for your mill and on Taylor Engineering Service, see a Taylor Representative or write to Taylor Instrument Companies, Rochester, N.Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

Taylor

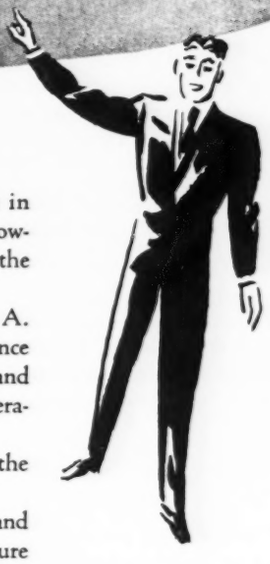
Indicating / Recording • Controlling

TEMPERATURE, PRESSURE *and* **FLOW INSTRUMENTS**

COMPLETELY SOLUBLE—

SPARKLING CLEAR IN WATER

HYDROSULFITE A·W·C



FOR STRIPPING AND DISCHARGE PRINTING

- Our Hydrosulfite A. W. C. is available in varied forms—lumps, pea size, rice size and powdered—all uniform in size and quality, and of the highest possible strength.
- The complete solubility of Hydrosulfite A. W. C.—with no sedimentation—is your assurance of perfect discharge, freedom from scratching and facing, smooth, uninterrupted, satisfactory operation, sharp lines and thorough penetration.
- Hydrosulfite of Soda Conc. is offered for the reduction of vat dyes and for stripping silk.
- Made under glass, Hydrosulfite A. W. C. and Hydrosulfite of Soda Conc. are absolutely pure and white, and the crystals are uniform in size.

Write today for samples—no cost or obligation.

JACQUES WOLF & CO.

MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY

Warehouses: **Providence, R. I.; Philadelphia, Pa.; Utica, N.Y.; Chicago, Ill.; Greenville, S. C.; Chattanooga, Tenn.**

- **BEST IN PERSONAL LIVING** at one of the world's greatest resort hotels.
- **COMPLETE VACATION** program is provided with your hotel accommodations.
- **LOCAL TRANSPORTATION**, by luxurious aerocars, to all vacation activities in the Miami area, *without extra charge*.
- **EXTRA FACILITIES** for enjoying yourself in membership privileges of the exclusive Florida Year-Round Clubs: Miami Biltmore Country Club, adjoining hotel estate; Roney Plaza Cabaña Sun Club, Miami Beach; Key Largo Anglers Club, Key Largo.

(Note: When your reservation is made at the Miami Biltmore, your name is placed before the membership committee of the Florida Year-Round Clubs. Upon approval, you have membership privileges in these three magnificent sports establishments, during your sojourn at the hotel, without payment of initiation fees or dues.)

ACTIVE SPORTS

GOLF — 18-hole championship course, adjoining the hotel. Five celebrated pros, including Tony Manero, National Open Champion. One of the most beautiful clubhouses in the world.

HORSEBACK RIDING — Stables of fine mounts. Thirty miles of bridle trails. Field for jumpers. Courteous expert staff.

SWIMMING — Huge, outdoor pool, with miniature sand beach for sun-bathing, on hotel estate. Surf-bathing on Roney Plaza's private beach, Miami Beach; also, large, salt water pool of Roney Plaza Cabana Sun Club.

TENNIS — Fast, clay courts on hotel estate. Brilliant professional coach. Also, courts at Miami Beach in the grounds of the Roney Plaza Hotel.

FISHING — World's best sport-fishing is available at Key Largo Anglers Club, one of the units of the Florida Year-Round Clubs, on the Florida keys. Fleet of fishing boats, fully equipped for deep-sea angling. Crews of experienced guides.

SPECTATOR SPORTS

GOLF TOURNAMENTS—A dozen big events this winter on the Biltmore course, including the famous Miami Biltmore $10,000 Open.

HORSE RACING — Aerocars run on regular schedules, conveying Miami Biltmore guests to and from both handsome tracks: Hialeah Park and Tropical Park, without extra charge.

AQUATIC SPORTS — Weekly water carnivals are held at Miami Biltmore pools. One of the resort season's favorite pasttimes. Olympic champions and other stars in competition and exhibition. Comfortable, protected spectator facilities for thousands.

TENNIS TOURNAMENTS — Held regularly on the Miami Biltmore and Roney Plaza courts, with the country's stars frequently in competition.

CHOWDER PARTIES — Frequent social events, such as chowder parties and fish fries, are held at Key Largo Anglers Club. Cottage and clubhouse accommodations. Every comfort for informal living. Daily aerocar transportation to and from the hotel.

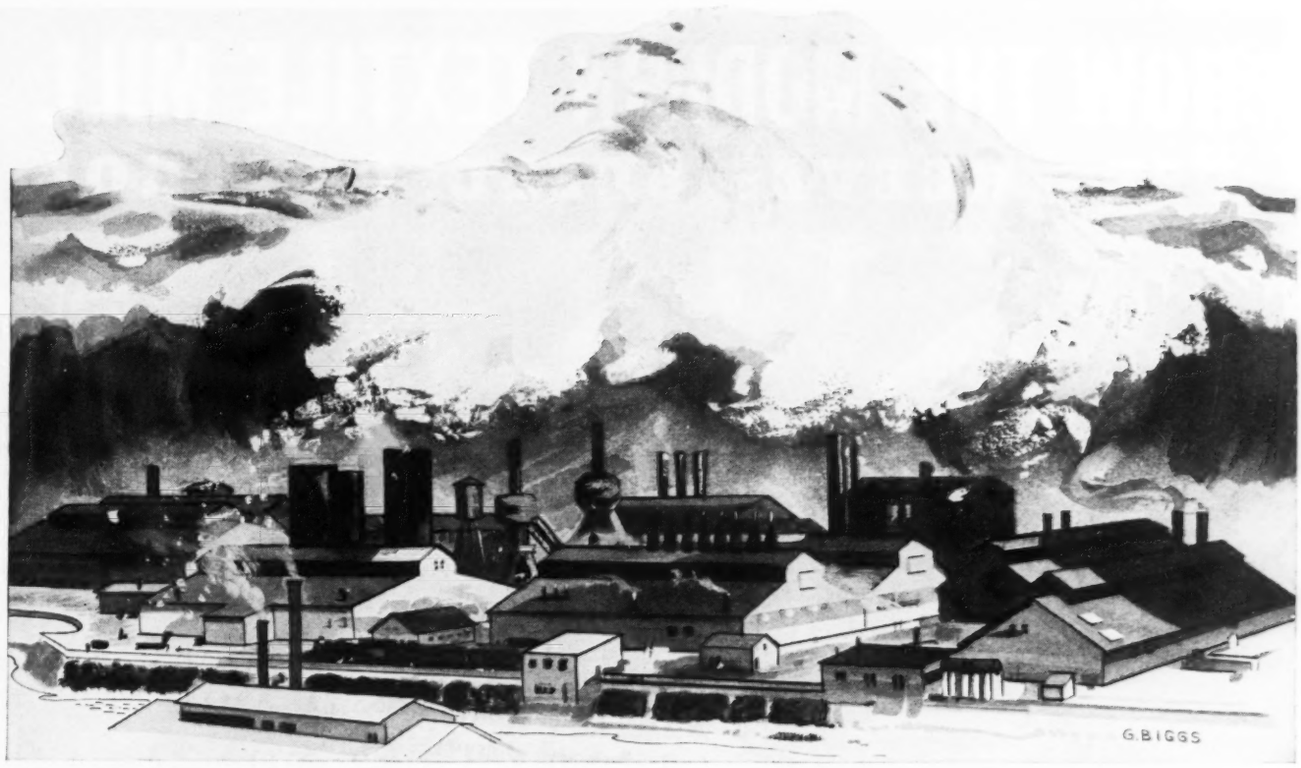
● In short, whatever your preference in sport or relaxation, it can be satisfied with a Miami Biltmore vacation. Whatever your inclination in social life, you may indulge it here—whether night-life gayety in the dining room (musical revues and dancing) or a quiet bridge game in the lounge.

Nowhere in the resort world will you find such a complete schedule of things to do and to see .... such smart conveniences for enjoying your favorite hobby .... or such extraordinary privileges as are offered, *without extra charges*, in this "Center of the Wintertime World".

MIAMI BILTMORE

CORAL GABLES, MIAMI, FLORIDA

For reservations and literature (name your hobby) address hotel direct or New York office: 521 Fifth Avenue, Suite 1238-41.



DON'T LET THE

Hazard of Hard Water

HANG OVER YOUR MILL

...especially now that volume orders are coming back.

You have realized all along that Permutit water softening equipment could rapidly pay for itself in your plant—if you had a reasonable volume of business.

Today the long hoped-for volume orders are coming through . . . and more coming! So why wait?

Permutit engineers will plan an installation suitable for your needs—tell you how soon it can be installed—what it will cost—and how quickly it should pay for itself in your plant. Their recommendations will be based on a sound understanding of practical cotton, woolen, silk and rayon textile processing as well as a thorough knowledge of water treatment.

Any phase of water conditioning is covered by Permutit—including removal of hardness, iron, coloring matter, turbidity and other objectionable elements.

If desired, a Permutit technician can be assigned to make a special study of your individual plant water supply problems.

Let us know your reaction to this suggestion, and ask for our special bulletin, "Reducing Textile Costs and Troubles." Address THE PERMUTIT COMPANY, Dept. B1, 330 West 42nd St., New York, N. Y.

Permutit

Water Conditioning

THE PERMUTIT COMPANY, Dept. B1,
330 West 42nd St., New York, N. Y.

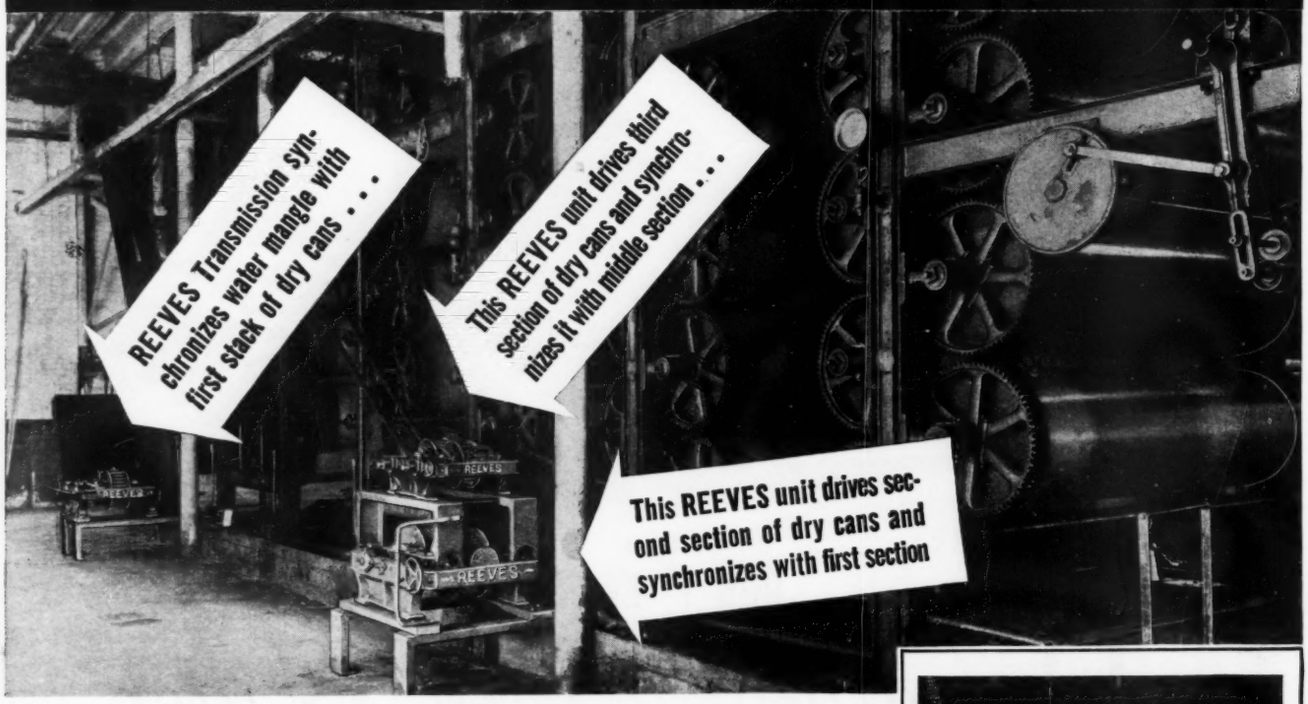
Please show me what I can save by changing to SUPER-ZEO-DUR.
Please show me how to overcome the water difficulty I have described as follows:

Name ---

Company ---

Address ---

HOW THE MODERN TEXTILE MILL USES REEVES SPEED CONTROL


REEVES Transmission synchronizes water mangle with first stack of dry cans . . .
This REEVES unit drives third section of dry cans and synchronizes it with middle section . . .
This REEVES unit drives second section of dry cans and synchronizes with first section
REEVES

PICTURED above are installations of three REEVES Variable Speed Transmissions operating water mangle and dry cans in a large Southern textile mill.

Through the complete and sensitive speed adjustability provided by these REEVES units, speeds of each section in this process are perfectly regulated to maintain correct tension on all weights and weaves of cloth.

Flow of cloth is speeded up or slowed down smoothly and accurately to the desired ratio on any and all sections, without stopping. Correct speeds, even to fractions of an r. p. m., are ALWAYS available as required by weight of cloth, moisture content of cloth, dryness desired, etc.

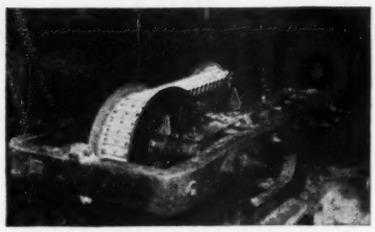
The main drive is to first stack of dry cans. A No. 2 REEVES drives the water mangle and regulates delivery of cloth to first stack of cans. Another No. 2 REEVES drives second stack of cans and regulates cloth tension between first and second stacks. A No. 0 REEVES drives third stack of dry cans and regulates tension on cloth between second and third stack.

Thus you have at your finger tips, regulated tension and to a certain degree CONTROLLED SHRINKAGE.

Eighteen REEVES Transmissions are in operation in this mill, providing accurate regulation of machines as individual units and maintaining a swift, uniform flow of production from one process to another.

Write today for copy of REEVES Speed Control Handbook, T-37, which contains valuable information on applying speed control to textile processes.

REEVES PULLEY COMPANY, Columbus, Ind.



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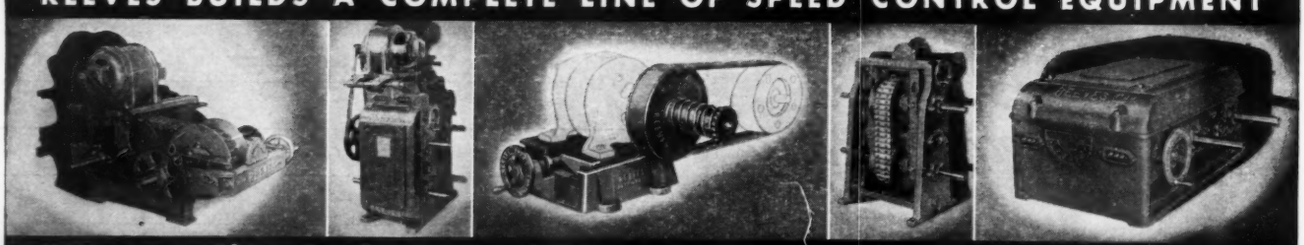

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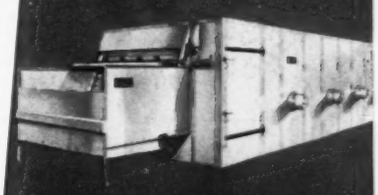

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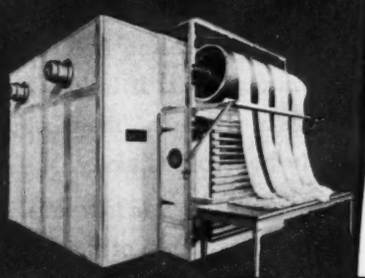

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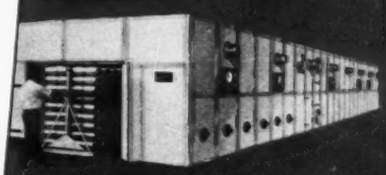
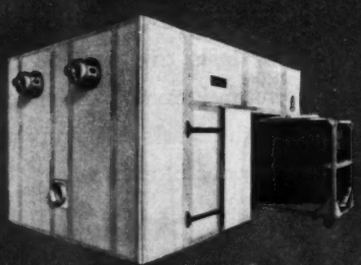
With or Without Rolling Girts



Drying and Conditioning Rayon
In Cakes or on Cylinders



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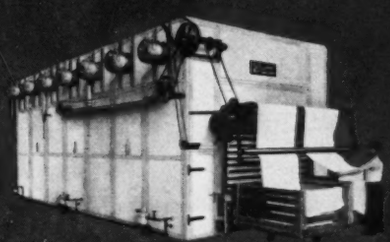

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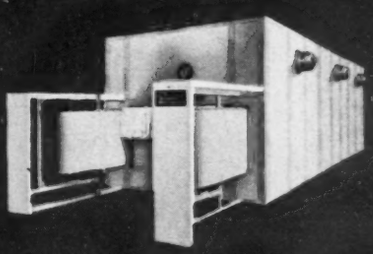

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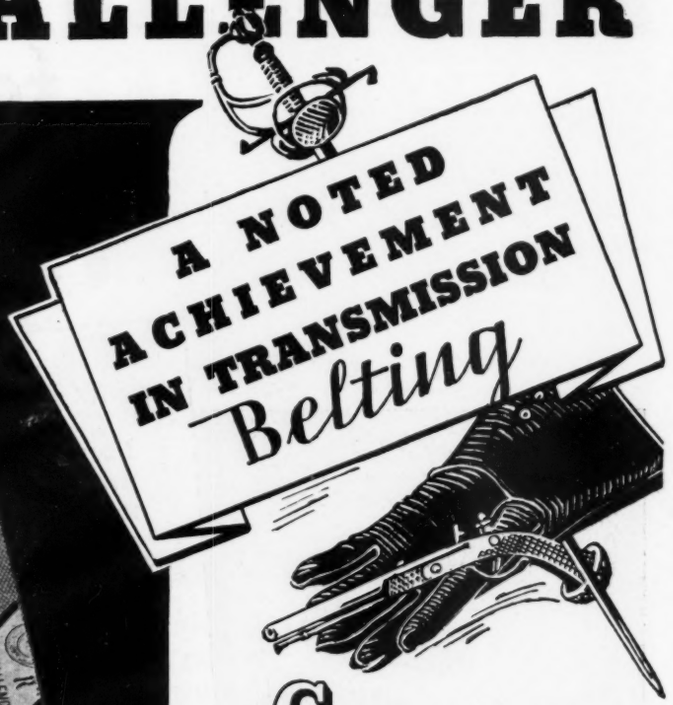

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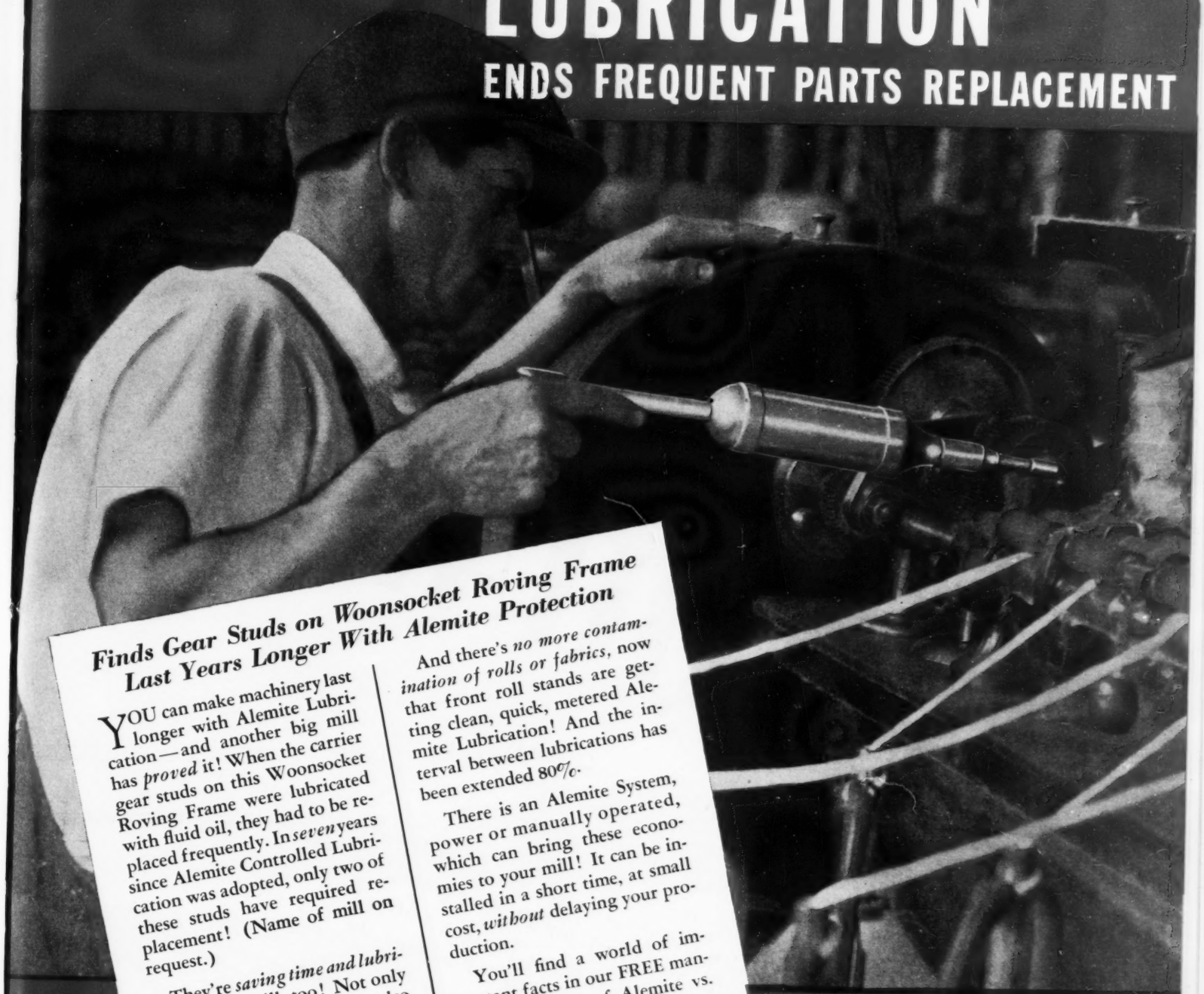

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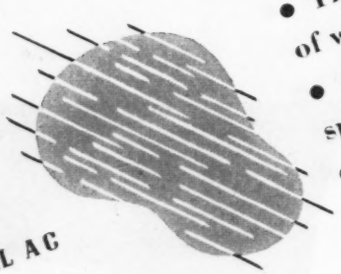

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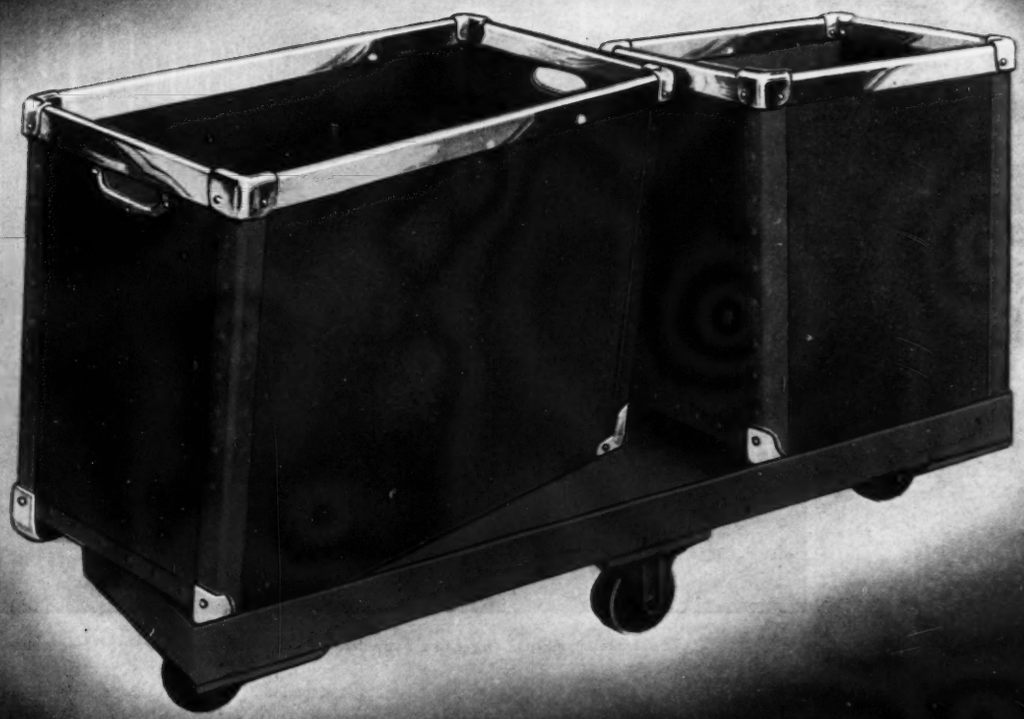

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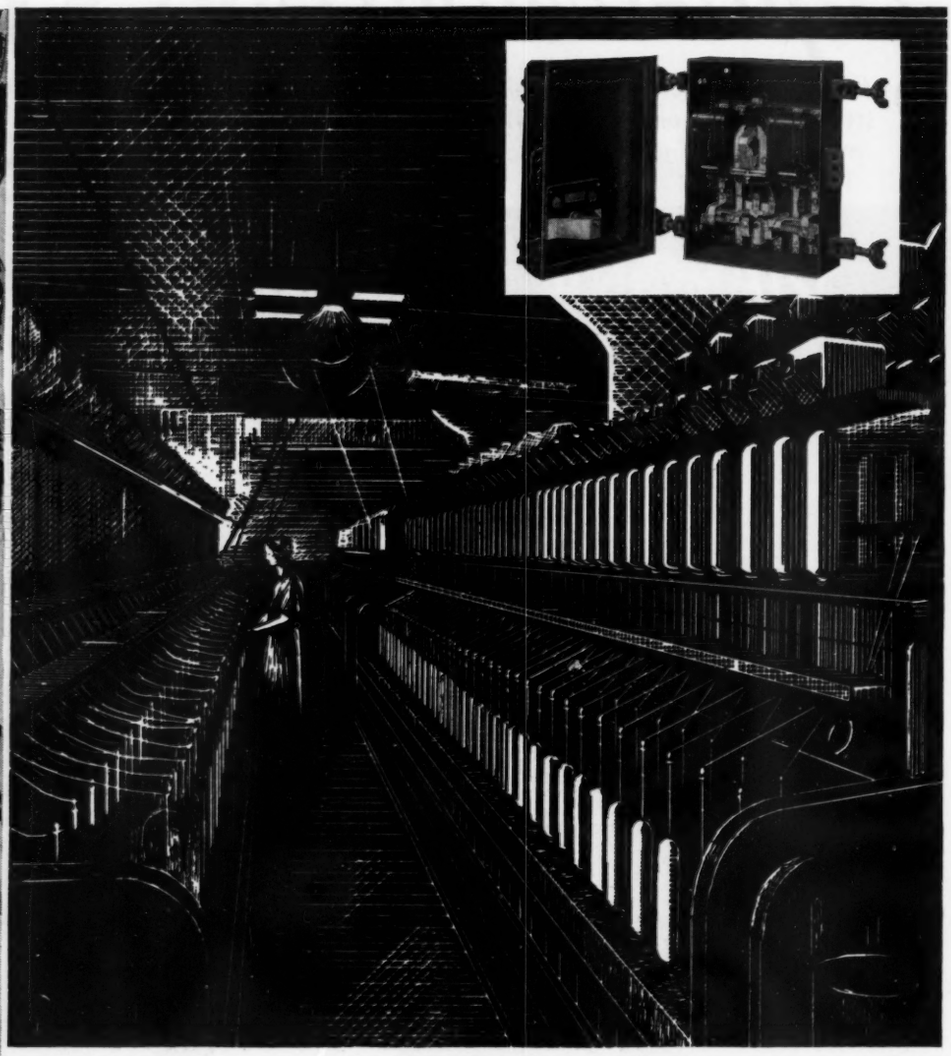

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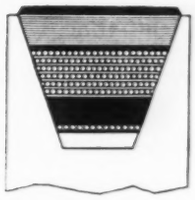

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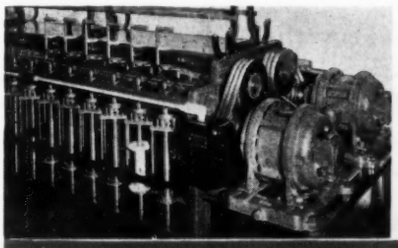

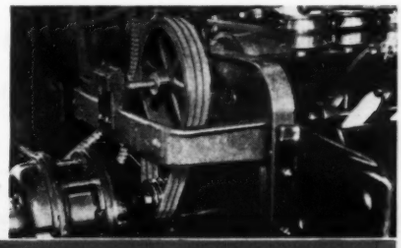

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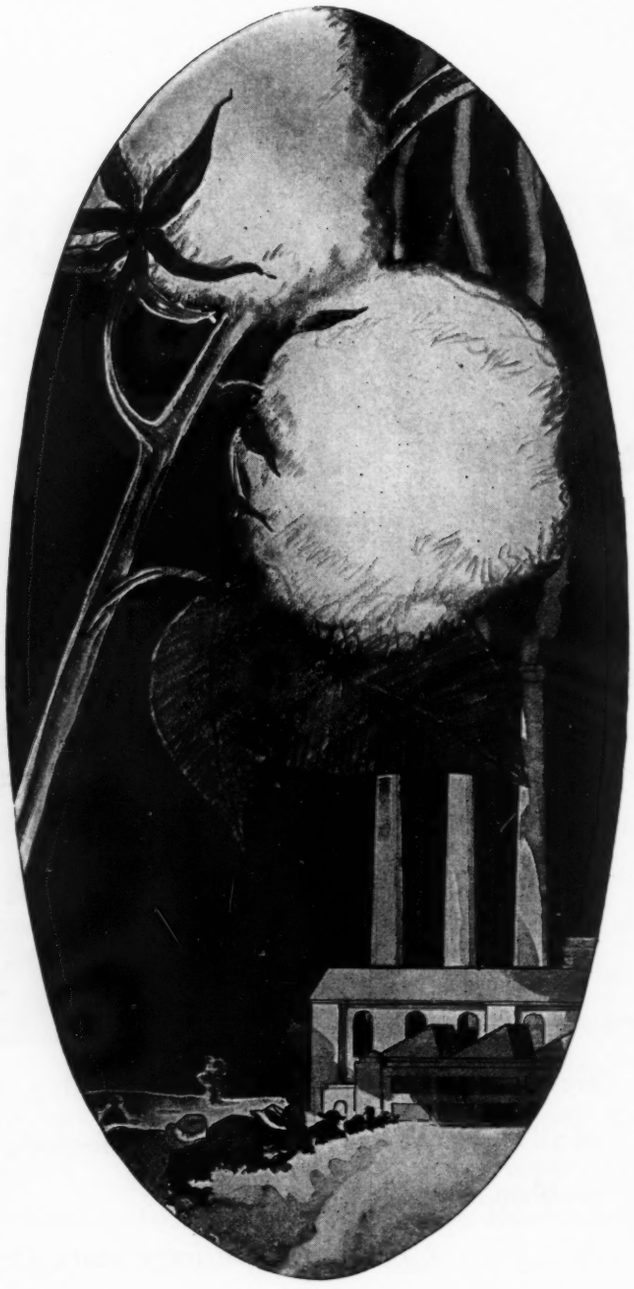

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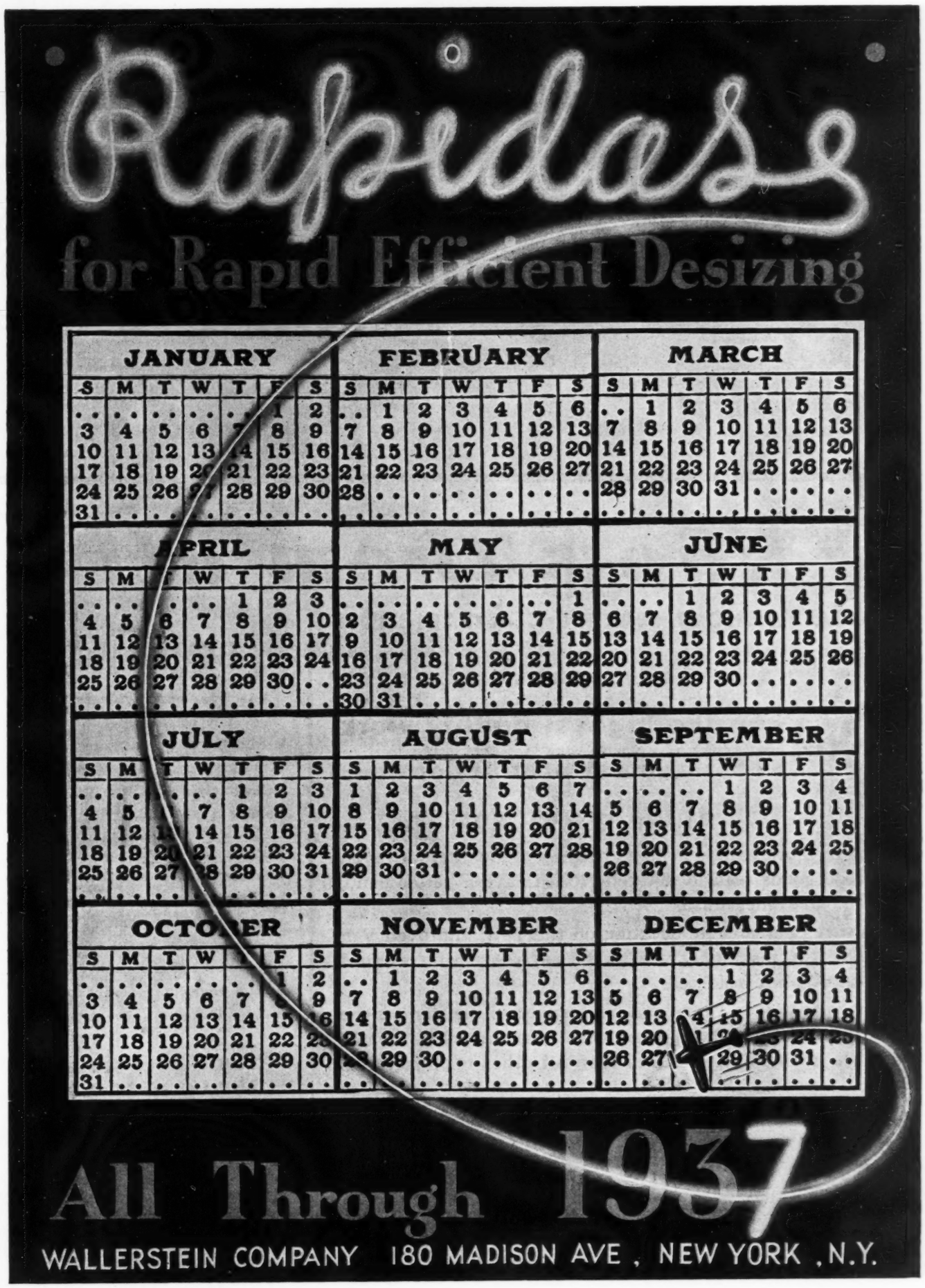
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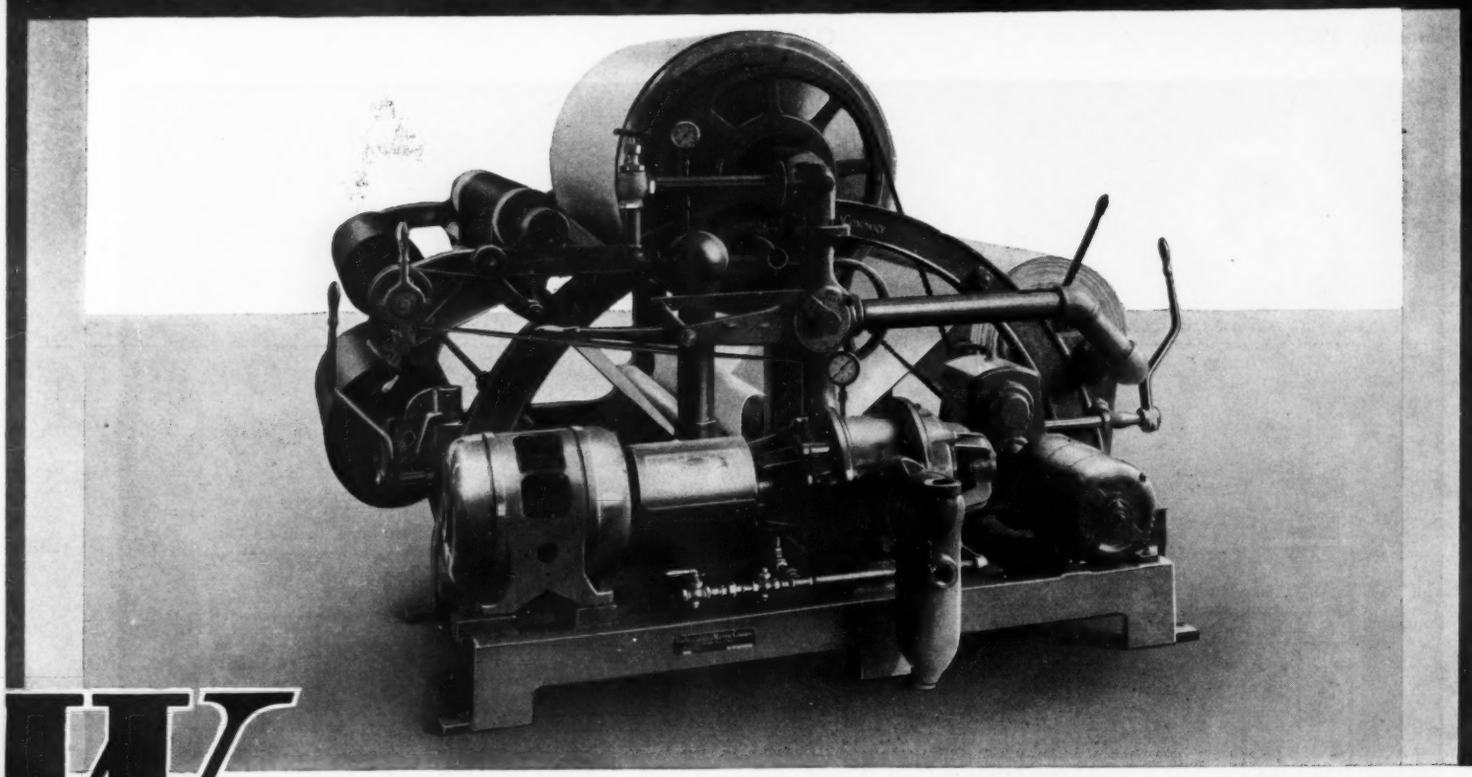

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COTTON

JANUARY, 1937

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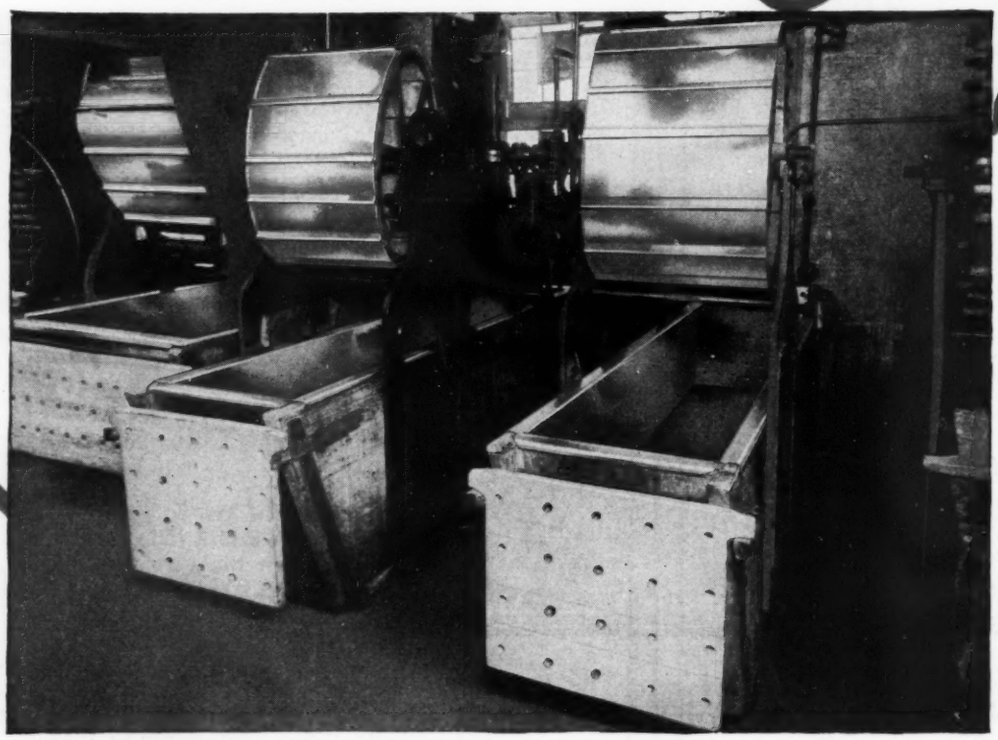
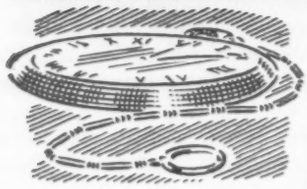
"Color Changes NO LONGER LIMIT OUR CAPACITY"





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Employees at Goodyear Clearwater Enjoy Broad Insurance Program

By T. M. Forbes
Secretary, Cotton Manufacturers Association of Georgia

CONSTRUCTIVE assistance by a mill to aid its operatives toward a more secure life, without "paternalism", is much needed and instances of its achievement are important news. Mr. Forbes tells here how an outstanding organization has built up a complete insurance program for its 2,700 operatives, covering not only death and disability, but for special emergencies such as operations and hospital confinement, and day-to-day ones such as medical attention from local physicians . . . . . .

FOR MORE than two years the employees at the three textile plants of Goodyear Clearwater Mills in Georgia have received protection under a rather complete program of insurance that has proven eminently satisfactory. It embraces the generally used group insurance against death, workmen's disability compensation and a plan of accident and health insurance; but in addition, includes some other special features which round out the program into a complete and practical plan which gives the employees, at a very modest cost to them, insurance protection against the cost of hospitalization and ordinary medical attention, as well as disability and death.

Because the plan has worked out so satisfactorily with their employees—giving them a condition of security and protection and making possible, for the first time for many, necessary treatment of and attention to physical disorders and suffering, the mills have agreed to a brief description of the various features of the program for the readers of COTTON.

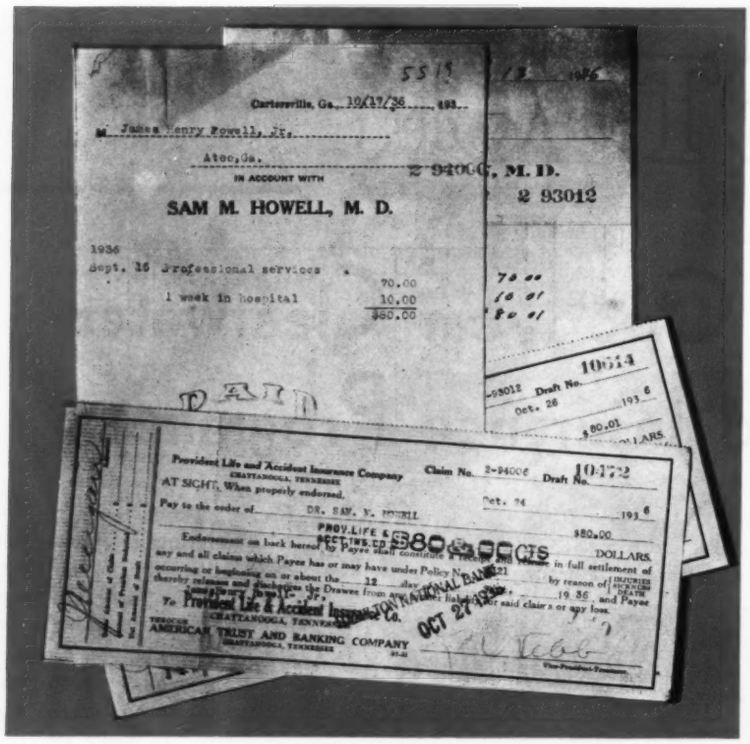
In these three plants, the Goodyear Clearwater Mills, located at Cedartown, Rockmart and Atco, Georgia, there is a total of 2,700 employees. Up to the first of July, 1934, there was in effect a partial program of insurance. It included a plan of accident and health insurance termed "relief benefits", which offered weekly indemnities to the employees in the event of disability occasioned by sickness and non-occupational accidents. Each employee under this plan pays a certain amount weekly into the relief association fund.

In addition, the mills of course had workmen's compensation insurance covering disabilities sustained on the job, and the third phase of their original plan was group life insurance on which the mills paid the full premium.

The management felt for a long time that, while this program was substantially complete so far as protection against disability and death was concerned, that it was not enough. It made no provision for emergencies—special ones such as needed operations and hospital confinement, and day-to-day ones such as medical attention from local physicians. The management, in common with other mills, would too frequently encounter such cases as that of a man failing to have a disability corrected, or a needed operation performed, because he didn't have ready cash to cover the surgical and hospital expenses; or that of an employee neglecting diseased tonsils, for instance, for lack of funds or a dread of an expensive doctor bill; or that of a school child in the village, handicapped by defective eyesight, for the same reasons. And in many of the cases, where the needed work was done, the payment was, as usual, burdensome to the mill and the employee, and oftentimes uncertain for the physicians.

Goodyear began seeking some means whereby the securing of hospitalization and medical services might be made easier for the employees, and they could be encouraged to utilize them when needed; and whereby the cost for them might be worked out on an economical basis and the expense of them taken care of on a budget basis, rather than the employees being faced in times of emergency with heavy charges which they were unable to meet without heavy strain upon their resources. They wanted this to be worked into the existing disability-and-death program.

Eventually, the mill called into conference the Provident Life and Accident Insurance Company, of Chattanooga, Tenn., which they found was particularly specialized in this field of insurance. In cooperation with them, the employees and the local



These PAID hospital and physician's bills are striking evidence of the benefits of the insurance program for the Goodyear Clearwater Mills' employees . . . . . .

physicians and hospitals, the present complete program which takes care of the problems mentioned was evolved.

Under this broad plan, the insurance—under its hospital reimbursement program—relieves the employee of a substantial portion of the emergency expenses incidental to surgical operations and hospital confinement, for both the employee and dependents.

The arrangement for medical service covers the payment for all ordinary medical attention—for both the employee and his or her dependents. By ordinary medical service I mean calls by the physician in the employee's home, and calls at the physician's office by the employee or his or her dependents. (This arrangement does not include drugs.)

This program also provides for the payment for services and treatment in connection with childbirth.

In practical effect, these particular features of the insurance program mean that the employee, by payment of a small weekly premium, has paid for him the major cost of any operation and its attendant hospital expense; and even is relieved of the payment for ordinary "sick calls" by his regular physician. And we might emphasize here that the program does not interfere with any employee's choice of a physician. He is just as free as before to use the services of any of the local physicians, just the same as though he were paying him direct.

We will now describe briefly how the program as a whole is administered.

All premiums (with the exception of the life insurance, which is paid in full by the mills) are paid for by the employee, the total premiums being deducted weekly from the pay envelope. (This small weekly premium, I would like to emphasize, is the total cost to the employee of the services and benefits described.)

The weekly medical service fee paid by the employee as a part of his premium is deducted by the mill office and forwarded to the insurance company. The total of the medical fees thus collected and remitted to the insurance company is then disbursed in full to the physicians working under the plan.

Accident and health claims are paid by the personnel departments of the respective mills. The medical service plan and hospital program are serviced by the insurance company through a field service representative who calls periodically at each mill. Payment of the hospitalization claims are made to the physician, to the hospital, or to the employee—as the employee may designate.

More than 93 per cent of the 2,700 employees of the three Goodyear Georgia mills are voluntarily insured under this plan. And most of the remainder are those living at such distances from their mills that they are thereby ineligible for the hospital and medical service features, since it was necessary for the insurance company to restrict the area in which these features could be operated to the villages themselves and adjoining localities.

So, practically all eligible employees, together with their dependents, are now fully protected under the plan, and something in excess of $75,000 was paid in benefits during the first two-year period; this does not include the returns under the group life insurance or the accident-and-health program.

As stated, under the plan any employee may use any physician of his or her choosing; and the fact that all of the physicians originally agreeing to work in the medical arrangement are still working under the program is sufficient evidence, I think, that they, as well as the management, the employees and the insurance company, are, as a whole, pleased with the results. From the physicians' standpoint, they are guaranteed prompt, full payment for each and every call and service; and while the fee per service is reduced, their total collected income has not diminished. And while this is being done, the employee has no doctor bills.

This program may not exactly follow the Oriental practice of "paying the physician to keep one well", but after two years' experience with it, the management feels entirely satisfied with it. They have seen many instances where employees have availed themselves of needed attention which previously they had neglected, and feel there are definite results in an improved standard of health among the citizens.

The successful installation and operation of the plan is due to the wholehearted co-operation of everyone concerned—the physicians servicing the employees in the villages, the surgeons, the hospitals, the insurance company, the mill staff and employees.

Suggested Laboratory Lay-Out for Smaller Gray Goods Mill

By Joseph L. Delaney
Testing Dept., Joanna Cotton Mills, Goldville, S. C.

THIS article is an answer to requests from readers who want "a practical discussion of what kind of a laboratory a small gray-goods weaving mill should and can afford to have". The author has covered the subject out of an extended experience, and his recommendations will prove useful to the mill which wants to go into a testing program gradually . . . . . .

TO THE MINDS of a good many people the word "laboratory indicates a large room filled with shelves full of chemicals in bottles, test tubes, retorts, blast furnaces and what not. Because of this mental attitude many textile men have a tendency to steer shy of such a place in connection with their own mill. However—and you may sit back and relax—this article will not deal with such a place. Its purpose is to cover the practical use of a "test room" whose equipment falls within the means and requirements of an average-size grey goods mill.

The value of such a department to a mill consists in constantly checking not alone roving and yarn sizings, but such things as moisture in material received and shipped; waste checks on different processes; checks on speeds, efficiency, production, end breakage, humidity, and twist. If you think all of this is non-essential, take a speed counter and step out to the card or spinning room and make a few speed tests on spindles, front rolls and cylinders. I'll leave you to figure out why your variation is what I know you'll find it to be.

Of course one man cannot do all of this work in his regular day's routine, but a well-laid-out schedule with past records for reference would certainly be of strong economic value to the executives. Not only this, but the moral value alone to the operatives is well worth the trouble and expense. When you consider that the front roll speed of a group of frames may be running 4 to 8 per cent below their operating standard, and that this condition may exist to a greater or lesser degree throughout the mill, it is easy to realize the urgent necessity of this single item. Maintained speeds mean more production and the operatives benefit with more money, since in most instances their wages are on a piece-work basis. With a little tact on the part of the technician, the co-operation of all is soon secured.

Before laying out any definite routine, I would suggest that the checker, technician, tester—or whatever name you might choose—start in the opening room and go through the entire mill to the final operation, making out a full list of the number of machines of each separate process, their speed, particulars such as settings, blows per inch, roll diameters, teeth in gears, motor speeds and pulley diameters, weight of stock fed and delivered, draft and intermediate drafts. Twist and twist multiples, production per unit or spindles, and all other essential information by which a complete understanding of the organization of the mill may be obtained. With this as a starter, the executives may get together and set up particular standards which they wish maintained, and future checks will show just how well, or otherwise, this is being done. Relatively few organizations remain unchanged for any great length of time, but a big objective will be reached in getting the house in order and installing an inexpensive system for keeping it that way.

If a complete diagram of each process is made showing the full details, with draft, twist and production constants worked out and applied, and copies of this information given to interested overseers and executives, I feel certain that all concerned will benefit. Some time ago a mill engineer told me that in checking over the organization of a mill he found a group of slubbers running with 60 per cent of the total draft concentrated as a break draft between the back and middle rolls. As soon as this situation was pointed out, the draft was corrected, but if this defect had not been found, it might yet exist.

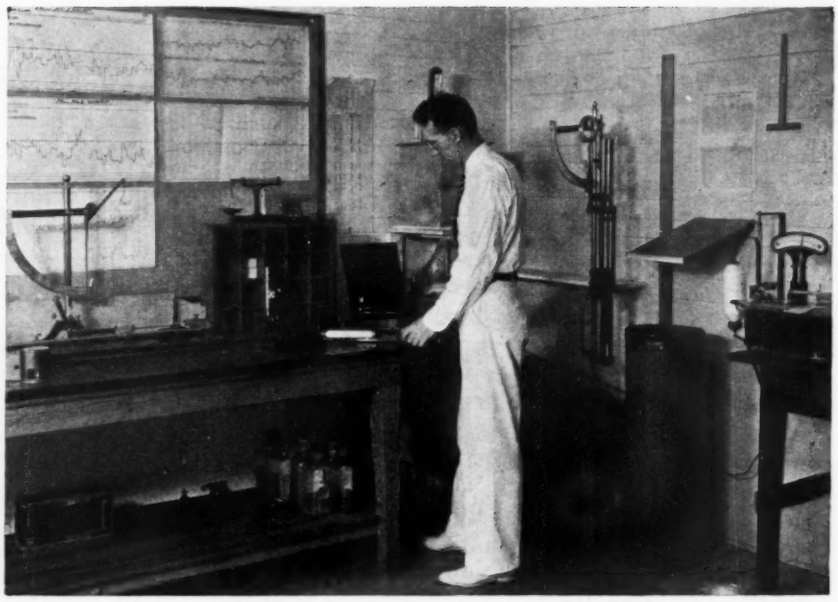
Much could be written on how all of these "checks" are made, but my purpose is to show only their need. For instance, a mill buys cotton containing 9 to 11 per cent moisture. After passing through the mill it may be shipped out as cloth with as low as 6 per cent regain in it. Here is a point where daily checks will mean the difference between making or losing a profit. How much regain does your raw cotton—from the center of the bale—contain?

Some time ago our mill acquired a number of spinning frames from a plant which had been liquidated. When the frames arrived, they were overhauled and put in operation after the necessary changes and adjustments had been made. Inadvertently, the break draft gears were not checked and it was noticed that the yarn from these frames was not as strong as the yarn spun on our regular frames, nor did they run as well. It was thought at first that this was a situation that would take care

An article, "The Mill Laboratory", by H. D. Evans, which appeared on page 73 of the February, 1936, issue of COTTON, described in detail the activities of the extensive physical and chemical laboratories of the Pepperell Mfg. Company at Biddeford, Maine.—THE EDITOR.

of itself after the frames became broken-in. When the condition persisted, it was decided to check one frame completely in order to locate the trouble. When the draft plan was made out and the break draft calculated, it was found to be nearly 2.00. With this single point corercted on this group of frames, the running of the work showed a marked improvement and the yarn strength increased by almost 10 per cent.

The reason we knew the correct break draft to apply was because we had previously made a complete check on this one feature, and had determined by actual tests the break draft most suitable for the cotton we were using.



The author reeling yarn in his laboratory. Note graphic charts on wall at left . . . . . .

On one occasion our overseer of carding felt that it would be beneficial to his fine frames to cut the spindle speed by about 10 per cent, also taking out twist. This was done on four frames and after a week's run the efficiency showed 5 per cent higher than the regular frames, with production in actual hanks, slightly higher. When followed into the spinning room, this roving showed no more "break-backs" than the regular roving, and in comparative yarn tests it showed less variation and unevenness than the regular roving. Here was where our roving tester was put to work and responded nobly.

Our agent, while passing through the weave room one day, thought that our "crossed-ends" on our loom beams looked bad. My department was instructed to make weekly checks on all our looms to see if this undesirable defect could be reduced to a minimum. By the end of the first month the percentage of crossed ends showed a drop of over 60 per cent. Now our percentage is below 15 per cent which we may yet succeed in lowering still further. Our slasher and drawing-in hands, our spooler and warper hands, and our entire loom fixing force all take a keen interest in reducing this defect, and with plenty of co-operation on the part of the spinning and weaving overseers, we bid fair to keep it at a low point.

These instances are related to demonstrate the general usefulness of a full time technician. With the proper equipment, a little space, encouragement and co-operation, an investment of this sort will constantly repay its cost. It seems obvious that work of this sort should not be performed by interested parties, such as overseers, employees involved and so on. If a weaver says that his looms are stopping too often on account of warp breakage, and his overseer tells him to keep a record so that he may take the matter up with the superintendent, it will take a very exceptional man to refrain from exaggerating his trouble. Not only this but when the figures are shown to the spinning overseer, he cannot be blamed for casting a highly suspicious eye over them. With a trained and impartial outsider to do the checking, all the correct facts would be shown, and these figures accepted and evaluated in their true light. Furthermore, to set up standards of speed or otherwise, for any one department, and then ask the one in charge to make periodic checks to see that these standards are maintained is only to court trouble. The overseer should primarily be free to attend his regular work, and should be relieved of such routine. It follows that no one else in his department would be considered by an outsider as impartial enough to take this work over. Here is where the trained man enters; completely impartial, fair to everyone, competent, courteous, and in no sense a trouble maker, his findings are above question and freely accepted by all concerned.

The overseer who has been accustomed to doing most of this work by himself cannot be blamed if at first he regards the new system with a quizzical eye and a "show-me" expression. But with the right man in charge, working to promote not only quality and efficiency, but also harmonious feeling between departments, it isn't long before the "glad hand" is extended.

It would be impossible in an article to make specific recommendations as to the exact amount of equipment needed by any mill, but as a "starter", I would suggest the equipment given in the accompanying list. (See page 54.)

Not all of this may be purchased at once, but acquired as needed. In this way the department will amount to a pay-as-it-goes proposition.

It may be helpful to take a few of the items listed in the "equipment" and point out their uses.

The sliver board is used for routine testing of either card or drawing sliver. Locally we use a board 36x22 inches, hinged to fold 36x11. Laying the sliver across the board and cutting it one yard long will give samples which may be weighed and evaluated on the grain scale.

The grain scale takes its name not from wheat, oats or any other grain, but from the fact that being based on the avoirdupois weight scale, it weighs in units of this system, there being 7,000 grains in one pound. The scale should always be balanced before using by setting the indicating segment or "bean", over the left hand zero, and turning the set screw until the mark on the beam arm and the mark on the body coincide. This method is much more accurate than that of using the level set in the base of the scale.

The sliver tester is an instrument for testing the roundness of the card or drawing sliver. It will show whether slivers from all the cards and drawing frames are uniform. When changes such as roller settings, speeds, tensions, draft distribution, or other adjustments are made, the effect on the uniformity of the sliver may be noted at once by using this machine. Being completely impartial, it will show when an improvement has really been made or quickly disillusion when otherwise.

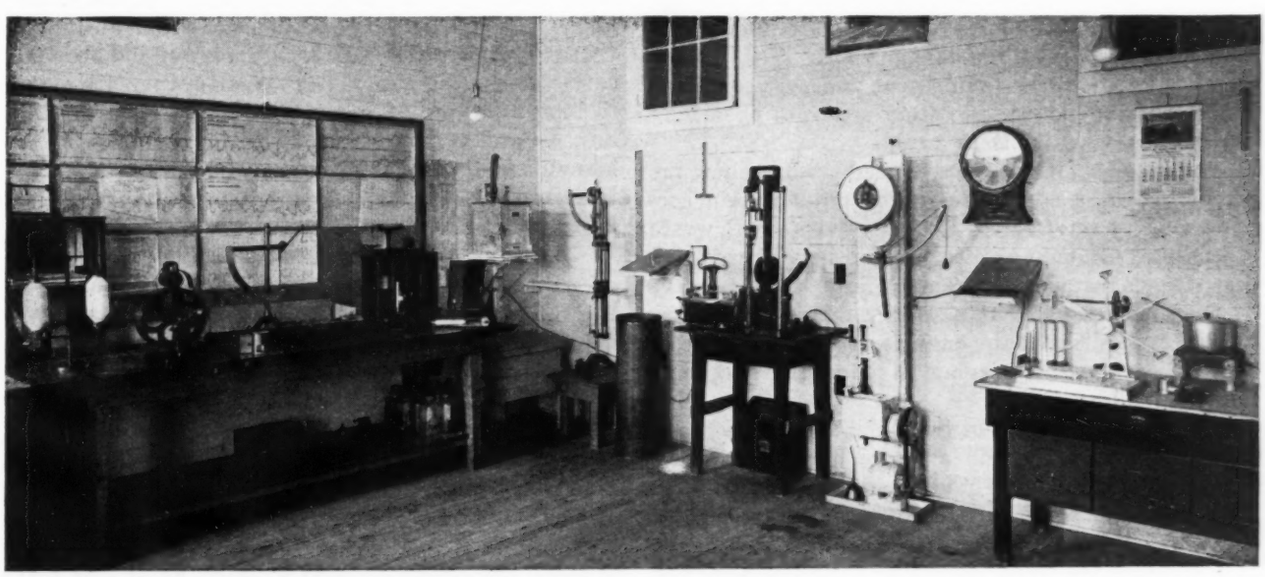
The Belger roving tester is used to test the amount of twist, the uniformity, and evenness of tension from beginning to end of doff, in a bobbin of roving. The twist is shown by the height of the graph line on the chart, the higher the line the higher (or harder) the twist. The uniformity of the roving is shown by the variation in the graph line. The more the line moves up and down, the less the uniformity. The correctness of the tension is shown by the average level of the line at Full bobbin, Half bobbin, and Empty bobbin points. If the line at Full bobbin starts high, is medium at Half, and is low at Empty, it may be assumed that the tension tightens as the bobbin fills up. This defect may be caused by cone belt not starting at proper position on cones, incorrect cone gear, wrong tension gear, faulty contour of cones, or any one of the thousand troubles with which carders are cursed. On one occasion we found a frame running very unevenly and after considerable checking of gears, of cone belt starting positions, oiling, petting, pampering, and patience, we finally found that the cone belt had become worn by a rough cone fork, and that enough play existed to allow the fork to shift without moving the belt for two or three changes. After smoothing the fork and replacing the belt, the frame ran a perfect bobbin from start to finish.

The electric oven is used for bone drying samples in order to find the moisture contained therein. The samples are first weighed in their natural condition, and then placed in the oven which is generally set to hold a temperature of 220 to 230 degrees F. The moisture is driven off after about two hours, but if in doubt leave in longer and re-check weighings. Our oven is used chiefly, and regularly, for checking regain in stock entering mill, regain in cloth leaving cloth room, regain of daily roving and yarn tests, regain in warp yarn leaving slashers, and in making de-sizing tests on slasher yarn. The percentage of moisture regain is figured on the bone dry weight of the sample, rather than on the atmospheric weight, because the bone dry weight is constant and the atmospheric highly variable.

Glass fruit jars are used in collecting samples for regain tests, and holding them in their original moisture condition until they may be brought to the test room for weighing and drying. The ordinary screw or clamp top jar fills the need of a container admirably.

The boarding reel is an inexpensive device for mounting yarn on a black board for visual observation. The white yarn placed against the black background is sharply thrown in bold relief. It is then very easy to spot thick and thin places, gouts, slugs and other imperfections. If the board is hung on the wall and observed from different angles a much clearer picture of the yarns condition will be given. This device is really essential when comparing the merits of two or more yarns.

The electric hot plate and cooking vessel are used in making de-sizing tests. The yarn sample as cut from the slasher is placed in the fruit jar and taken



A general view of a laboratory operated by a gray-goods mill, with equipment as described in this article

to the test room where a sample weighing from 50 to 75 grains is weighed out in a glass-stoppered bottle and then dried to a constant weight. The difference between the initial and final weights represents the moisture loss in grains. The regain may be calculated by dividing the grains lost by the bone dry weight, and multiplying by 100. The sizing materials may be stripped from the residue by boiling with a one per cent hydrochloric acid solution, rinsing out the acid with water, and drying to get the bone dry weight of the remainder. In making such tests we always make certain to de-size a sample of the un-slashed yarn in order to find the percentage of solubles and foreign material which it contains. This percentage should be deducted from the total per cent lost by the sized yarn. It generally runs between two to three per cent.

The sling psychrometer is used in finding the relative humidity, which is the percentage of moisture in the air as compared with the amount present if the air is saturated. The instrument is fitted with matched mercury bulb thermometers, one of which, the wet bulb, projects below the level of the dry bulb. The wet bulb is covered with a tubular knitted fabric of unsized material so that it may easily be moistened before using. In using, the handle of the instrument should be grasped and the device whirled, preferably in a vertical plane, with sufficient rapidity to give the wet bulb a velocity of from 10 to 20 feet per second. If thin bulb thermometers are used the whirling time should be not less than 30 seconds, while if thick bulbs are used the whirling time should be for about 60 seconds. The operator should stand facing the air current and away from locations where direct heat or sunlight would unduely effect the reading.

On the Use of Graphic Charts

Where permanent records are kept on such subjects as yarn sizings and breaks, costs, efficiencies, wastes, production, and so on, the use of graphic charts offers a ready and certain means of following the daily, weekly and monthly averages. Such charts properly made out and kept up-to-date give the operating chief a full and easily assimilated picture of the conditions prevailing in his plant. The line on the chart would show the present and past condition of the subject charted. No other means of absorbing information visually is as rapid.

For instance, if the chart is graduated to show the percentage of waste made in the mill, certain sections may be outlined to indicate the normal waste expectancy. Should the line extend beyond this section it is immediately noticeable, and the executive becomes aware of it at a glance. Under ordinary circumstances he would have to study a number of reports, continually keeping in mind the maximum tolerance allowed.

To chart the weight of the finished cloth, a graph might be graduated with a single horizontal center line. Above this line would show the percentage on the light side, and below, the percentage heavy. In the course of a few months the record would indicate whether the trend is good or bad. Another chart could show the cost, with the weekly cost in one color and the monthly cost in another. Cost figures are severely watched, I know, but a little graphic assistance would not be objectionable.

There are a number of methods in which to set up and keep graphic records. One way is to make time. At the end of the year the entire book with them up in loose-leaf fashion for a full year at a the date stamped clearly on it is filed and a new book started. In this way an extremely valuable reference library may be built up at a very low cost. This method could be used on large or small graphs, or a large set may be kept in the department where they originate, and a smaller duplicate set, about letter size, could be kept in the office of the executive. The smaller size graphs have the advantage that they do not take long to be made out and are more easily kept up-to-date. The larger graphs are easier to read and may be made up more attractively. In any event, any one graph should not contain too many lines or too many colors. The feature of graphic charts lies in their simplicity, and much is lost by over-complication.

In closing, the "technician" should not be overloaded with too much routine. Sufficient time should be allowed him for handling investigations of new textile developments which are continually cropping up and which may prove of extreme value to the mill. He could also use time to spot and correct abuses or wastes; to plan and carry through reorganizations tending towards lower costs; to effect changes designed to better the quality of the goods or improve the running of the work. In these and many other ways the true technician will show himself as an interested and observant worker whose job it is to make the operating man's job easier.

SUGGESTED EQUIPMENT FOR A MEDIUM-SIZED LABORATORY FOR A GRAY-GOODS MILL

A sliver measuring board 36" x 22", made in the shop.
A sharp pair of scissors, 6" blades.
Grain scales highly essential.
Roving reel, with wheel 36" in circumference, also creel stand.
Belger roving tester and Saco-Lowell sliver tester (to be included when budget permits).
Yarn reel of standard make.
Automatic power yarn tester (This should be equipped with interchangeable jaws suitable for yarn and fabric tests).
Yarn sizing quadrant (inexpensive, accurate and a big time saver).
Electric oven with thermostatic control.
Single strand yarn tester, with elasticity indicator.
Boarding reel for winding yarn on blackboards (inexpensive and useful).
An up-to-date twist counter.
Pick glass or thread counter (the latter is much more accurate).
Magnifying glass, a few dissecting needles and tweezers.
Electric hot plate.
Covered cooking vessel suitable for making desizing tests.
Sling psychrometer and humidity tables.
Speed indicator adjustable for high and low speed ranges.
Measuring tapes, rules, drawing board and equipment.
A number of glass fruit jars for such tests as regain in slasher yarn.
Glass beakers, graduates and water tumblers.
Handbook of the American Society for Testing Materials.
"Cotton Mill Machinery Calculations," by B. M. Parker.
Polyphase slide rule (20-inch) with magnifier.
Typewriter, desk, filing cabinet and office equipment.

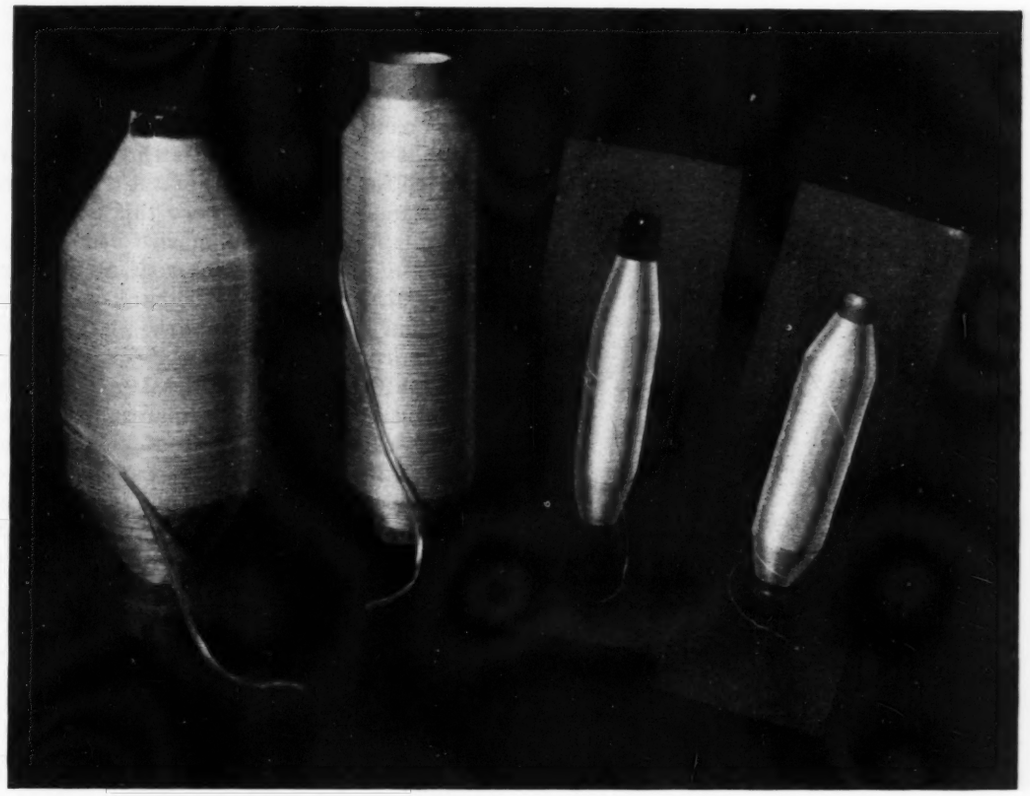


Photo Courtesy Whiting Machine Works

Roving and yarn made from rayon staple and as described here by the author

Making Yarns and Cloths from RAYON STAPLE

(Article 2)

By Edward King

THIS is the second and concluding installment on the processing of rayon staple, which is fast becoming an important factor in the mills today. The first article, begun in the December, 1936, issue, delved into the history of rayon, covered the general qualities and specifications of the fiber, and carried the reader through the opening, picking, and carding operations of the cotton mill making the rayon yarn on regular cotton mill machinery. Here the author describes drawing, combing, spinning, spooling, warping, twisting, slashing, and weaving processes . . .

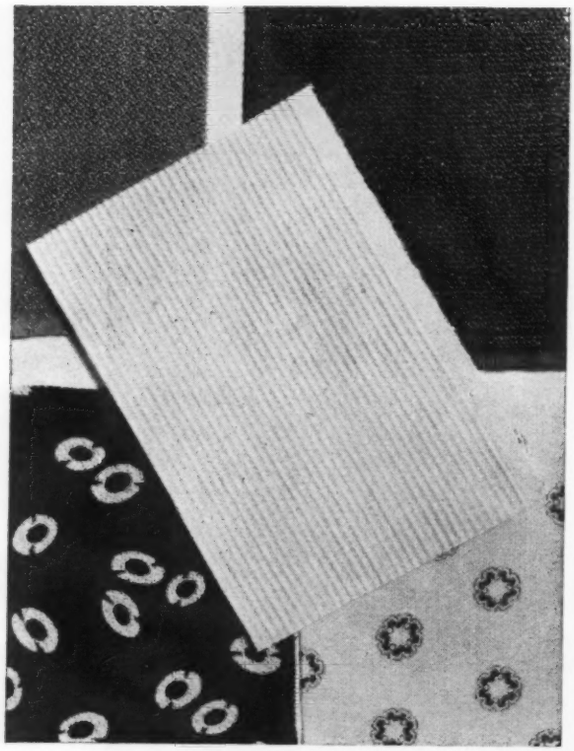
STANDARD processes for cotton are in general satisfactory for spun rayon processing at the draw frames. One-, two-, or three-process drawing may be used. Two-process is recommended. It is said that the more the drawings the better the luster given the staple.

Either metallic rolls or leather- or cork-covered top rolls may be used. All cotton wax should be removed from the sliver guides and plates.

The number of doublings and the draft should be the same as for cotton. If the mill is equipped for putting six ends up then this practice should be followed with spun rayon. No change need be made in the draft—it should be approximately equal to the number of doublings. Relative humidity should be maintained at about 65 per cent.

Where blends of cotton and spun rayon are to be used it is best to do the blending at the drawing. This gives a more exact mix since it will be possible to put up one or more ends of spun rayon with the balance of the ends cotton, and thus get the percentage of each very close to what is wanted. When the blending is done at the picker it is not possible to get as thorough and accurate work.

When blending at the drawing it will be best to use at least three drawings in order to get a more perfect blend of the rayon stock.



Examples of fabric made from rayon staple. Note the varied constructions . . . . .

Combing

Combing of the spun rayon would serve no useful purpose and would add to the cost. Where combed cotton is to be blended with spun rayon, the cotton should go through the combers in the usual manner and the blending should then be started at the first drawing.

Fly Frames

The number of roving processes used is determined by the count of yarn to be spun. In general the slubber, intermediate, and jack frames are used for the spun rayon. In case it is to be made into very coarse numbers it is permissible to spin direct from the slubber roving as in the case of cotton.

Care should be taken to see that too much twist is not used here. It is best to cut the twist factor to about three-fourths of that used for staple cotton.

Somewhat shorter drafts than are used for cotton are desirable. Drafts of 3.50 to 5.00 are satisfactory. The rolls need not be changed from the kind being used for cotton. Metallic, cork-, or leather-covered rolls will do the work. Spun rayon cuts the life of rolls because of its tendency to lap up and groove them.

Spun rayon roving lies more closely on the bobbin than cotton of the same hank. It will be necessary to change the builder motion to adjust for this difference.

A great deal of trouble will be encountered here if the roving bobbins are not in first class condition as regards oil. The spun rayon has a marked affinity for oil and will draw it from the bobbin even when it looks as though there was no chance of this being done. It is best to purchase a paper sleeve and fit it over the roving bobbins. This sleeve is made fast to the bobbin by use of a rubber band between the bobbin and the sleeve.

The roll settings for the 1½-inch spun rayon should be the same as the settings used for 1¼-inch staple cotton. The speed of the frames should also be the same as the speed for this cotton.

A sample of the roving size used for one of the finer yarn numbers made from all-spun rayon follows: .50-, 1.00-, 2.20-, 6.00-hank jack roving; this to be spun into 36s warp yarn.

Spun rayon does not make a great deal of fly when the fine denier, as the 1½, is being run, but the fly increases where the coarser denier, as the 4½, is being run. The amount of cleaning involved is substantially the same as in the case of cotton.

The use of spun rayon does not involve any special amount of roll cleaning. It is not necessary to do any special cleaning of the fluted rolls either before or after the running of spun rayon.

Piecing-up should be done carefully but does not involve any special practices.

Spinning

As spun rayon is carried closer to the cloth the handling of same becomes more identical with the handling of like sizes of cotton.

The spinning operation can be carried on with the same moisture conditions, roll settings, and roll coverings that are used on long staple cotton.

The traveler used is from one to three numbers heavier than that used for cotton. This is necessary because there is danger of running a singling in the case of spun rayon. The fibers being 1½-inch long have the necessary strength to prevent an end from coming down when one of the two rovings breaks in the creel. Even with heavier travelers considerable trouble will be had with these singlings.

Lap-ups are much more pronounced than in the case of cotton and are very much harder to get off the rolls after the lap-up has occurred. More damaged rolls will therefore result when spinning spun rayon.

Double roving should be used. Drafts of from 10.00 to 12.00 are recommended for all numbers. A draft of from 14.00 to 18.00 can be used on the long draft spinning frames but the yarn does not seem to be quite as good as that made on the short drafts.

The best strengths in spun rayon yarns are obtained with lower twists than are required for cotton. A good twist factor for warp yarn is 3.25, while that for filling yarn is 3.00.

The thread guide between the front roll and the ring should not be grooved from use. It does not matter whether the porcelain or metal guide is used.

The speeds used for cotton may be used except for the finer numbers—50s to 80s—where it will be found better to reduce the speed 10 per cent to 20 per cent.

Although the spun rayon causes a great deal of trouble by its affinity to oil, it has been found that a good enameled filling bobbin gives enough protection at the spinning frame. This also applies in

the spinning of warp. Doffer trucks, and boxes in which the yarn is stored, should be lined and care should be taken to prevent the accumulation of any greasy fly about these boxes.

The conditions applying for cotton hold for spun rayon when it comes to piecings. Care must be taken to prevent poor work.

Spooling and Warping

Filling wind is used on the warp bobbins so the yarn can be pulled off over-end and put onto the spools with a minimum of friction. The spun rayon yarns can not be weighted as heavily at the spoolers as in the case of cotton.

If spooler tenders are being paid piece rates they should be allowed the same for coarse numbers as for cotton. For numbers 30s and finer it will be found necessary to allow them more if they are to earn as much as for the same numbers of cotton yarn.

Relative humidity should be kept around 65 per cent.

Care should be taken to see that no crooked skewers, or other obstructions, are allowed at the warpers. Anything that will have a tendency to stretch an end is to be avoided. The speed of the warpers can be kept the same as for cotton.

Twisting

Twist factors used for ply cotton yarns should be the same for plied spun rayon yarns.

Dry twisting is best for the spun rayon yarns unless some special problem makes the wet twisting necessary.

Slashing

Slasher methods that are used for cotton are more desirable for spun rayon yarns than the slasher methods used for continuous filament rayon yarn.

It is very important that care be taken to reduce the drag, or tension, on the warp during its passage through the size box. Cloth should be removed from the draw roller until there is just enough pull on the yarn to make it break clean at the split rod. It would be well to use the newer type slasher with positive drive, and also controlled let-off from the section beams, if this is available.

The same size mix that is used for cotton can be used but this is not recommended since it gives a harsh feeling warp that takes away some of the soft, wool-like feel that is wanted in the cloth.

Eight or nine per cent size and six per cent moisture content in the slashed warp is desirable. Spun rayon yarn coming off the slasher then has a soft, pliable feel such as is had by cotton warps that have only about three per cent size added.

The sizing of spun rayon has much to do with the success of the weaving of same, and the following sizing room rules should be observed:

1. The slasher tender should tend but one machine. He should not be called away from his slasher, or otherwise interrupted, while running a warp.
2. The temperature of the size box should be kept constant. The level of the size in the box should be maintained by use of an overflow pipe.
3. Keep steam pressures and temperatures constant on the drums.
4. Be careful of the stretch. Remember that stretching will take the "pep" out of the warp and result in bad weaving.
5. Do not over-dry the warp. A warp which has been over-dried will not regain what is lost even though it is kept well conditioned in the weave room.
6. Do not allow an accumulation of lint and dirt above the slasher where it may be liable to fall on and spot the warps. Sweep down overhead between sets.
7. Run strings through each warp—oftener if a break-out has occurred to give reason for so doing.

The following is a size mix which has been found successful:

Sago starch	120 pounds
Pure beef tallow	10 pounds
Water	100 gallons

Stir the starch with water until well mixed. Boil and add the tallow, continuing to boil for three hours. Bring the completed mix to 150 gallons, being certain to boil the completed mix a little after the last water is added. Drop the size into the storage kettle where it should be kept hot by means of a closed coil.

After the size has reached the size box at the slasher it should be kept at a bubbling boil so as to prevent any scum from forming over the surface.

If the mill is not prepared for the above mix some of the rayon gums may be purchased from one of the several makers. Spun rayon warps can be sized successfully with any one of these by mixing about 65 pounds of the gum to 150 gallons—that is, 150 gallons of finished size. No tallow is used. About three pounds of glycerin may be added to a cooking but this is not always recommended. These gums are usually cooked from ½ to 1 hour.

The spun rayon fiber is not as porous as that of cotton and does not take up the size as quickly. For this reason it should be run more slowly in slashing. A slashing speed of about 15 or 20 yards per minute has been found satisfactory.

Weaving

Weaving of the spun rayon yarns is practically the same as weaving cotton yarns of like size. The relative humidity should be kept at around 80 per cent.

The spun rayon yarns have a tendency to stretch apart if too much tension is used on the warp. The nature of the yarn makes it liable to break this way rather than snap in two as in the case of cotton where a tight warp is being run.

The spun rayon yarn must be wound tight on the filling bobbin since it has a tendency to slough off at the loom. If a bobbin of this yarn is conditioned and then allowed to dry out it loosens up on the bobbin and is much easier than cotton yarn to slip off over the end of the bobbin. Although the bobbin is hard and slick, the Midget feeler seems to act on it about as well as on cotton yarn.

The Cotton Textile Problem

By Peter M. Strang

WITH AN international cotton textile conference in the offing, the American industry should stop to consider the contributing factors which have cumulated into the present cotton textile problem. In the industry manufacturers, labor leaders, cotton merchants and agriculturalists often seem to work at cross purposes because they have lost sight of the ramifications of their joint problem.

To indicate some developments over a period of years which have had effect on the different branches of the cotton-textile industry, the table which accompanies this article has been drawn up. Some of the developments have influenced all of the four branches shown. Other factors, while important to one part of the industry, have no effect on other parts. The table does not attempt to list all the changes which have affected the industry. When considering the table, trends such as the general expansion due to the World War and the contraction of business due to the depression must not be forgotten.

From this table there seem to be but two developments which have increased the market for manufactured goods, namely the growth of the tire industry and the increased use of cotton goods in industry. On the other hand, as soon as the tire companies began to manufacture their own fabric and to increase their knowledge about the requirements of cotton tire fabrics that portion of the market supplied by independent fabric manufacturers was actually reduced. The increased use of cotton in industry has been in most cases in the coarser goods and has not aided the manufacturers of finer goods who are not equipped to make coarse fabrics.

The table indicates that competition in the industry has constantly been keener and keener. A few years ago, before a fine goods mill would quit, it would usually try to manufacture some coarser fabric, the manufacturing field of which was already overcrowded. The result would be that the fine goods mill would cause hardship to other mills already in the coarser field. To increase the general confusion, some independently owned tire fabric mills, when they found their market curtailed, changed to manufacture medium and coarse fabrics such as print cloths and sheetings.

Many of the same factors that have been injurious to the manufacturer have aggravated the difficulties of textile labor. The table would indicate that there has been a shrinkage in the total jobs available in the industry and some of the remaining jobs are precarious and spasmodic. The fine cotton cloths which used the longest and best cotton were the fabrics which required the most labor and the most invested capital per unit of output. The elimination of a fine goods mill meant the absolute loss of many jobs. Even the conversion of a fine goods mill to the manufacture of coarser goods caused some hardship to its employees. Such a conversion did not mean a job for a job substitution for the help, as less help is usually required for coarse goods per pound of finished product. The transfer of a mill from New England to the South might not affect the total employment figures for the industry but it meant the irreplaceable loss of jobs to those employees in New England who were not taken South.

The table would indicate that during the last few decades there has been a tendency to decrease the number of cotton dealers and the turn-over of a cotton crop. This is possibly an economic advantage as a bale will be handled fewer times between the grower and the spinner. Since the mills have become more exacting in their requirements the merchandising of cotton is more difficult. It is also true that the growth of cooperative selling associations, controlled by the government may have reduced the cotton market available to private dealers. However, many of the changes which have occurred in the cotton textile industry are related to the problems of the cotton merchants.

Since American mills are the best customers of American farmers for American cotton, changes which affect one must obviously affect the other. The table indicates that American mills do not use so much long staple high grade cotton as formerly. Since the shorter cottons usually have a higher yield per acre, with the same acreage farm competition should be more severe other factors remaining the same. Many former outlets for cotton and cotton goods have been reduced or eliminated. New uses which have been found for cotton in the last few years do not seem entirely to offset the lost uses when judged on a bale for bale or acre for acre basis. In addition to purely agricultural factors such as the increased cotton acreage occurring when tractors are substituted for mules and farm acreage formerly used to grow mule feed is freed for other purposes, farmers have to contend with developments which are common to all phases of the cotton textile industry such as style changes for women's wear, the development of rayon and the like.

With the cotton textile problem as complex as it is, the troubles of a group often appear out of perspective to its members. Illustrations of lack of perspective can be had from manufacturers who claim Japanese competition to be the root of all their troubles; or from labor leaders who blame the stretch-out for all the textile worker's difficulties; or from farm leaders who consider the textile problem merely the result of antiquated mill management failing to install modern textile equipment and methods. Correct perspective can be obtained only by viewing the industry as a whole. Each branch of the industry may have its own particular interests yet in the long run the particular interests of each branch may have to be somewhat subordinated to the welfare of the entire industry.

TABLE SHOWING SOME CHANGES WHICH HAVE AFFECTED DIFFERENT DIVISIONS OF THE TEXTILE INDUSTRY

CHANGE	EFFECT OF CHANGE ON			
	MANUFACTURER	TEXTILE WORKER	COTTON DEALER	COTTON FARMER
Growth of Tire Fabric Industry 1900-1922	An increased number of spindles were required for a new product.	Jobs were created for a large number of workers	The market for the longer stapled high grade cottons was increased	The market for the longer stapled high grade cottons was increased
Erection of about 300,000 new spindles by Tire Companies 1917-1929	The tire fabric market for independent manufacturers was reduced and some were forced to try to manufacture other goods	Jobs were transferred from independent operators to mills owned by tire companies. The jobs with the independents were made more spasmodic	Transferred the sale of cotton from one group of manufacturers to another	No change
Development of cord fabric for tires	Much combing and weaving of tire fabric was eliminated. Much expensive equipment had to be junked	Jobs were lost in the combing and weaving of tire fabrics	The market for tire fabric cotton was changed. Instead of extra long staple high grade cotton shorter cotton was used	The market for the longer stapled cotton was reduced and the market for shorter cotton was increased. Usually shorter cotton has a higher yield per acre than the longer cotton
Development of rayon	Market for fine cotton goods was reduced. Some fine goods mills were forced into the field of coarser goods	Jobs were lost in fine goods mills	The market was lost for some cotton	The market was lost for some cotton
Style changes in women's wear	Market for fine cotton goods was reduced as a much smaller quantity was used per individual. Fine goods mills tended to go into the coarser goods field which was already crowded	Jobs were lost as the fine goods involved required a maximum quantity of labor per unit of output	The market for some long staple high grade cottons was reduced	The market for some of the higher quality long staple cottons was reduced
Movement of mills to the South	Keener competition resulted among existing mills since the new mills in the South were in most cases modern and southern labor costs were lower	Jobs were transferred from one section of the country to another	The sale of some cotton was transferred from one section of the country to another	No change
Increased use of textiles in industry	The market for the medium and coarser goods was increased	Jobs were made more stable or increased in some of the medium and coarser goods mills	The cotton market was increased for some of the medium stapled cottons	The market for the medium stapled cottons was increased
Specification buying of textiles	The manufacture of goods was made more exacting	Labor had to be more careful in the manufacture of goods	The sale of cotton to mills was made more exacting	No change
Hand to mouth buying of finished goods	The production of goods was made more spasmodic	The jobs of workers were made more spasmodic	The sale of cotton to mills was made more spasmodic	No change
Hand to mouth buying of cotton	The cotton inventories of mills were reduced	No effect	The sale of cotton to a mill was spread over a larger part of the year and a number of the smaller dealers were eliminated	The effect on farmers is not known
Improved Manufacturing 1) long draft spinning 2) high speed warping 3) weaving	The intensity of competition among mills was increased	Jobs were reduced some	No change	No change
Stretch out system	Costs were reduced some	Jobs were reduced some	No change	No change
Processing Tax	The market for cotton goods which competed with other materials upon which there was no compensating processing tax, was reduced	Jobs were reduced some	The sale of cotton was reduced some	The cotton market was reduced some but the farm price of cotton was increased
Japanese Imports	The home market for American made cotton goods was reduced	Jobs were reduced some	The sale of some cotton was transferred from America to Japan	The raw cotton market was transferred to some extent from America to Japan insofar as the imported goods were made from American cotton
Boll weevil	Increased difficulty was experienced in obtaining suitable cotton	More care was required in manufacture of goods	The sale of cotton to mills was made more exacting	Cotton growing was made more difficult. Early maturing cottons were introduced
Introduction of low shoes in U. S.	The market for shoe lining and thread for stitching shoes was materially reduced	Jobs were reduced	The sale of cotton was reduced some	The market was lost for some cotton
Introduction of closed all steel automobiles	The market for cloth for automobile tops was reduced	Jobs were reduced	The sale of cotton was reduced some	The market was lost for some cotton

Determining the Maturity of Cotton by Use of the Cotton Classer's Microscope

By E. R. Schwarz
Massachusetts Institute of Technology

WHY, *did you say, should you worry about a thing like this? Well, let's borrow the reason from the author: "It is well established that neps are produced nearly 100 per cent from immature cotton. No textile man needs to be told that (except for certain novelty yarns) neps are most undesirable in either yarn or fabric. Further, it is well known that immature cotton is weak and difficult to spin because of its thin-walled flat cross-section. Thus a means by which the degree of maturity or immaturity might be easily measured is of value to the cotton classer."*

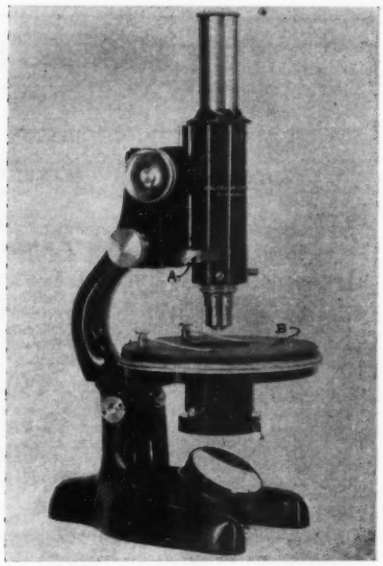


Fig. 1. Cotton Classer's Microscope . . . . . .

HERE is a brief, and readily understandable, discussion of how to measure the maturity of cotton fiber by the use of the polarizing microscope. It emphasizes the point that, through the adaptation of a new polarizing material, this can be done effectively and inexpensively.

Mr. Schwarz in this article has interpreted the subject in terms of practical value.

IF A COTTON MANUFACTURER were told that the quality of his product could be tremendously improved because of a device which would use the waves of the ocean to measure the relative excellence of the lots of cotton that he bought, he would be properly suspicious of the sanity of the person responsible for the statement. There is evidently little connection between the ocean wave and the cotton boll. Certainly no change in the nature of the cotton fiber in the latter will influence the former. The presence or absence of unripe fiber will not make the slightest difference to the comfort of the bather nor will it change the tiniest ripple or the mightiest breaker in the slightest.

The fact that a certain bale of cotton contains a substantial amount of ripe, fully mature, strong fiber will not in the least affect the quality of your radio reception by changing the frequency or the amplitude of the carrier waves bringing you the broadcast. No suggestion has yet been made that the mill man use a radio set to pick up any waves broadcast from cotton.

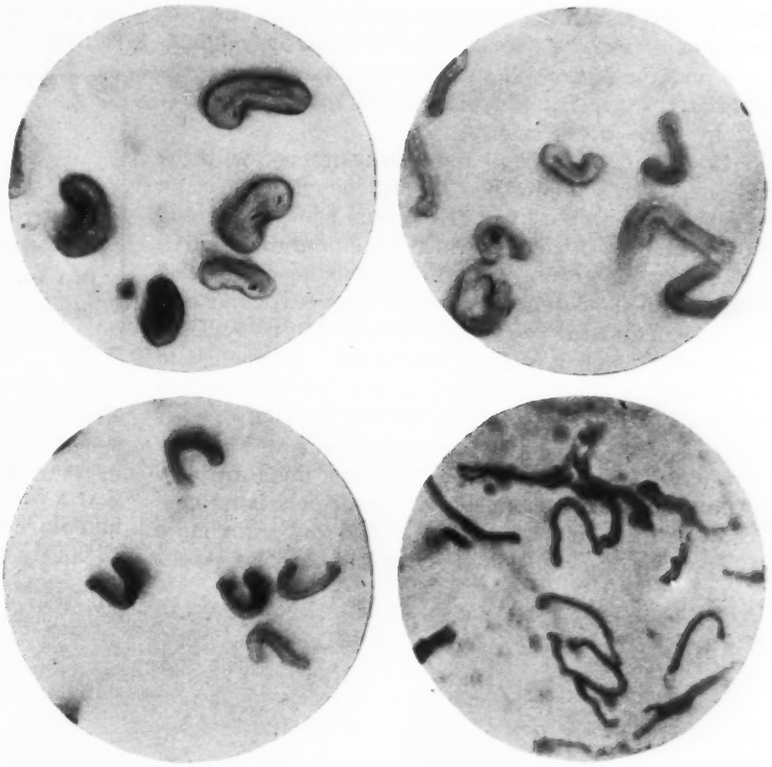
But waves do come from cotton fibers. If a beam of light is sent through a cotton fiber it is changed tremendously and very peculiarly in its nature. Every cotton fiber—mature, immature, weak or strong—polarizes the light that passes through it. What do we mean by polarization, and why should the cotton man be interested in it? Simply because by looking at the light coming from a cotton fiber through a polarizing microscope it becomes very easy to measure the maturity of the cotton.*

Ordinary light is made up of waves (like ocean waves, X-rays, or radio waves). These waves vibrate in all directions although always perpendicular to the direction in which the light is travelling. A cotton fiber has the ability—shared by such other substances as quartz, mica and feldspar—to sort out and re-direct the light waves so that they vibrate only in two directions—at right angles with each other and at right angles to the direction in which the light is travelling. Vibrations of ordinary light (just before it reaches the cotton fiber are much like a crowd of people milling about in a country fair. After leaving the cotton, the vibrations resemble the orderly marching of an army. Ordinary light behaves like a baseball crowd from the Yankee Stadium trying to enter a subway station. Polarized light behaves like the same crowd as it passes through the turnstiles in the subway—each individual with his nickel.

The old-fashioned way of producing polarized light was by means of a similar sounding device—a Nicol prism. These prisms are expensive and two of them formed the essential parts of the earlier polarizing microscopes through which polarized light of any sort could be studied. Now a new substance has been manufactured which polarizes light and which costs only a fraction of the price of the prisms. Thus has become possible an inexpensive cotton classer's polarizing microscope with which to study cotton fiber.

It would seem almost self-evident that it was only logical to study cotton with polarized rather than ordinary light since cotton itself is a polarizer of light. When such studies were undertaken by the author it was found that the mature fiber which produced good yarn, strong, even and free from neps, appeared very different from the immature cotton which produced

*It is well established that neps are produced nearly 100 per cent from immature cotton. No textile man needs to be told that (except for certain novelty yarns) neps are most undesirable in either yarn or fabric. Further, it is well known that immature cotton is weak and difficult to spin because of its thin-walled flat cross-section. (See Fig. pages 61 and 62.) Thus a means by which the degree of maturity (or conversely the degree of immaturity) might be easily measured is of value to the cotton classer. It puts him in a position to reject immature cotton before it has a chance to enter the mill or, if he wants to make novelty nep yarn, to make sure that he gets the best cotton for the purpose.



Here are shown the cross sections of fibers and the difference in the degree of maturity may be readily discerned. Upper left shows the mature fiber; upper right shows the partially mature; lower left shows the partially immature; and lower right is the immature fiber . . . . .

neps, weakness and irregularity in the yarn and fabric. A simple method of analysis was developed and the only drawback was the expense of the microscope which must be used. Now there is available a microscope using the new polarizing material which makes possible easy maturity measurement of cotton at very much less cost.

It will not be necessary in this discussion to go into the theory of fiber structure which explains why cotton polarizes light and why immature fibers polarize it differently from mature fibers. The reader who is interested in the theory will find the subject discussed by Astbury[1], the present author[2], and by Osborne[3], in its various phases.

As a matter of immediate interest it will be only necessary to refer above to see the difference between mature, partially mature, partially immature and immature fibers as shown by the appearance of their cross-sections. That the thick walls and substantial, rounded structure of the mature fibers should make for easier spinning and better yarn is obvious.

Several hundred fibers are taken at random from a cotton classer's pull *before it is stapled,* combed parallel brushed lightly to straighten and mounted in a thin layer on a glass microscope slide between two small bits of scotch tape, adhesive or cement. A small section of an old top comb from a cotton comber will be found very satisfactory for the paralleling operation, and a small eyebrow brush obtainable at any toilet goods counter for the final brushing. The slide is then placed on the stage of the cotton classer's microscope and the revolving stage *B* (Fig. 1) rotated until the fibers are substantially lined up 45 degrees to the right of vertical. The microscope is focused and the fibers brought to parallelism with the ocular cross hair which runs up to the right. The body-tube slide *A* is pushed to the left and the background against which the fibers appear should now be a bright magenta color. The fibers themselves will be of different colors depending upon their maturity.

Mature fibers will appear a golden yellow along their entire visible length and will remain yellow as the stage is rotated. Partially mature fibers will appear distinctly greenish, changing to yellow as they are turned through 90 degrees or alternately yellow and blue along their entire visible length. Partially immature fibers will appear clear blue along their entire visible length and will turn to deep yellow upon rotation through 90 degrees. Fully immature fibers will appear purple (almost the same color as the background) along their entire visible length and will change to deep orange when rotated through 90 degrees. Table I summarizes the appearance of the fibers for different maturities and in various orientations).

To determine the maturity rating of the sample it is only necessary to count the percentage of fibers of each color and properly weight these values as spinning experience or yarn or fabric appearance indicates. A convenient device for counting the fibers in each color classification is constructed by mounting five counters on a base board. One is adjusted to ring a bell after any desired number of fibers has been counted. Each of the others registers the number of fibers in each group. As the slide carrying upon its surface the parallel bundle of cotton fibers is pushed slowly across the stage of the microscope, each fiber is counted by pressing the key on the first (totalizing) counter, and the key on the counter labelled with the color of the fiber being studied. If the bell is set to ring after one hundred fibers have passed the intersection of the cross hairs in the microscope, the read-

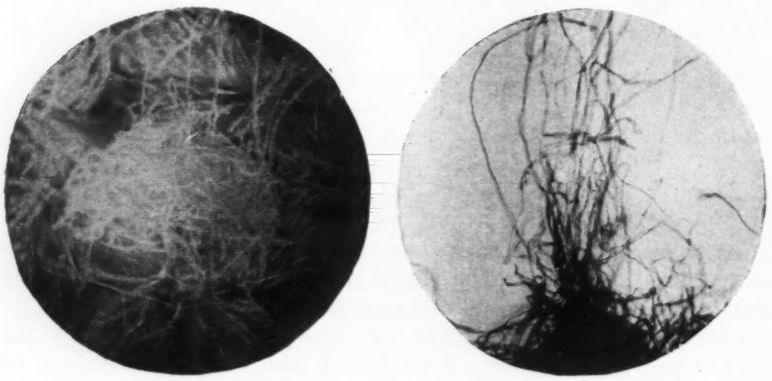
[1]Astbury—"Fundamentals of Fibre Structure", Oxford Press, London (1933).

[2]Schwarz—"Micro Measurement of Cotton Maturity in Polarized Light". "Textiles and the Microscope", McGraw-Hill, New York (1934). Rayon and Melliand Textile Monthly, June, 1936, page 61. Textile World, July, 1935, page 89. Textile Research, Vol. V (1935), page 370.

[3]Osborne—"Micro Analysis of Textile Fibres—IV, The Structure of Cotton". Textile Research, April, 1935, page 275; May, 1935, page 307.

ings on the remaining four counters will give the percentages of mature, partially mature, partially immature and immature fibers present. Average the results of three tests and treat the averages in the manner to be described below.

It will not be difficult for a mill equipped with the cotton classer's microscope to test samples of cotton which have produced nep free yarns and fabrics and to test samples of cottons which have produced uneven and neppy material. Thus limits can be established in line with the current practice of that particular mill below which maturity-rating a sample will be rejected and above which it will be purchased. The complete set of three tests occupies only a very few minutes and insures purchase of cotton which will not only be acceptable to the classer for character and staple but for maturity as well. A number of cotton mills are now using the much more expensive type of polarizing microscope with satisfaction and it is felt that many more will now be in a position to enjoy the benefits resulting from the use of the new cotton classer's instrument.



Left, nep as it appears on the fabric surface; right, same nep by transmitted light after removal . . . . . .

The accompanying Table II shows the method of obtaining the maturity rating, assuming arbitrary factors for degree of immaturity. .

TABLE I

Maturity	Fiber	Position
Mature	45° Right Yellow	45° Left Yellow
Partially Mature	Green or Alternate Blue and Yellow	Yellow
Partially Immature	Blue	Golden Yellow
Immature	Purple	Orange

This method of rating takes into account cases like the following. Suppose there were 90 mature fibers and 10 immature fibers in a lot. This condition is obviously worse than the case where there may have been 90 mature fibers and 10 partially immature fibers. This latter instance is, in turn, worse than the case of 90 mature and 10 partially mature fibers. Now the ratings for the three cases would be figured as in Table 3.

TABLE II

Fiber	% Fiber Count	Discount Factor	Corrected Count	Maturity Rating
Mature	40		40	$\frac{40}{40+60+60+40} = \frac{40}{200} = 20$
Part Mature .	30	2	60	
Part Immature	20	3	60	
Immature ...	10	4	40	

In the foregoing calculations the ratings of 2, 3 and 4 are chosen for illustrative purposes. It is assumed that each mill would make experiments to determine whether they consider for their conditions that a fully mature fiber was five times as good as an immature fiber or 1.39 times as good, etc., . . . It would obviously be more important to the mill manufacturing cotton fabric for liners for rubber calenders to avoid all possibility of neps and resulting unevenness of fabric surface. To be able to produce a fabric surface which was decidedly free from neps and from knots due to yarn breakage and consequent piecing up would greatly decrease the cost and time of inspection and mending, which now represents a real increase in the cost of such fabrics. Here a definite classification into four groups as noted would be almost essential. It would be good practice to put a high discount factor on partially immature and immature fibers. For the manufacturer who produces dyed material in solid color, and where neps (which do not take the dye as in normal portions of the goods) are undesirable from the standpoint of color uniformity, separation of cotton into two classes—mature and partially mature on one hand and partially immature and immature on the other would be adequate. The presence of knots is not so serious an objection here. For the manufacturer of flannel, where the surface of the fabric is to be napped anyway, the presence of neps is not such a serious matter as in the other cases mentioned. Such a manufacturer might be much more interested in preserving the maximum amount of yarn strength to withstand the napping operation and produce a flannel of the greatest possible durability. He would rate perhaps the undesirability of immature cotton differently from other mills.

TABLE III

	Readings			Corrected		
Mature	90	90	90	90	90	90
Partially Mature	10	0	0	20	0	0
Partially Immature	0	10	0	0	30	0
Immature	0	0	10	0	0	40
Rating				82	75	69

It is sincerely hoped that as the cotton classer's microscope comes into increasing use, the manufacturers will expend some time and effort in working out a satisfactory rating system for their own conditions.

Making a Machinery Survey

Part Four—Concluded from November Issue

By Richard S. Pope

Fly Frames

All the roving processes are the same in principle and are very near the same in detail between the different makes, consequently, any form to check one kind should serve for the others. Such a form is as follows:

Frame number, hank roving, stock, gauge, make, diameter of front, middle, back rolls, setting between front and middle rolls, setting between middle and back rolls, draft gear, twist gear, lay gear, tension gear, taper gear, break draft gears, blunt and broken skewers, broken or missing skewer steps, condition of roving rod, length or width of leather on top roll, actual length of traverse, condition of top rolls, back, middle, front, condition of flyers, condition of spindles, bolsters, spindle shaft gears, spindle gears, bobbin shaft gears, bobbin gears, spindle points, builder jaws, builder dogs, horsehead gearing and compound, top cone sprung, condition of cone belt, roller beam lined and leveled, etc., and remarks.

From the diameters of the rolls and the space between the rolls is figured the length of the settings. What the settings should be is a matter of opinion, however a consensus of opinions for setting on staple of given length is likely to be very near the same. Lately there seems to be a leaning toward closer settings than were formerly generally used, at the same time the weight on the rolls has been increased. The idea behind the opinion seems to be that as the rolls become worn they lose their gripping power, and to counteract this loss, the weight should be increased, and to further compensate for this loss the rolls should be closed to insure full drafting effect.

Needless to say, such a procedure can go so far before trouble is encountered, however, there is an advantage in following such a plan on very old frames. If the rolls are very smooth their gripping power can be increased to a certain extent by changing the direction in which they turn by putting the rolls of a left hand frame into a right hand frame and right hand rolls in a left hand frame. Where this has been tried with doubtful results it might be possible that only the front rolls were exchanged; to get full benefit all three rolls should be exchanged. All change gears should be checked by actually counting the teeth in the gears and not depending on the number that is punched on the side of the gear. It may seem far-fetched but gears have been found where there was a difference in what they were and what they were supposed to be; this is particularly true where the gears are cut in the mill's own shop. It is a good rule for some responsible person to check all gears coming into the department to see that they are what they are supposed to be.

If all the frames are cataloged as having the same roll diameter it is generally expected that the draft gears for a given size roving should be the same, however, if there is considerable difference in the age of the frames it is not always possible to use the same size draft gear to get roving of equal weight, therefore it is sometimes necessary to correct this difference by using different crown or draft gears. If any difference is found in these gears the reason should be found and if such condition is the result of carelessness the condition should be rated in proportion to those that are correct and those that are not.

The twist is practically a fixed proposition except for the same condition that would cause unequal drafting, however, if such a condition does exist it is not as easily determined as a difference in drafting or as easy to make equal, therefore all frames with the same twist constant should, for all practical purposes, be the same. In case there are several twist constants for the same type of frame it is a good idea to make them all the same by changing the gear on the top cone that drives through the twist gearing; this is not always possible but if it can be done it makes less confusion when frames are changed and also gives uniform twist that in turn will give more uniform drafting at the following process.

Lay gears should be checked to see that they are uniform; also they should be figured by the lay constant to see how near they are to what the machinery manufacturer recommends for the roving being run; in addition to this, the first layer of roving on the bobbin should be inspected to determine whether the layers are as close as possible. If any of the bobbin shows through the roving it would probably be better to reduce the speed of the rail until none of the bobbin shows.

It is hardly possible that anyone would advocate running the same tension gear on every frame producing the same size roving as there are several things that would make such a procedure impractical or impossible. If it is found that the size of the tension gears varies as much or more than 5 per cent then it is a good idea to check some of the factors that would make it necessary to run gears of various sizes. At this point there might be opinions that 5 per cent is not a big variation, also the question will probably come up as to what difference does it make if different gears are on the frame provided the tension on the roving is satisfactory. This question has been discussed in COTTON by those who understand the subject; a feeble summary of which would be that with correct cone outlines, cone gears, compound gears, lay gears, and a given size of empty bobbin, the cone belt should start in a certain place and continue up the cone with a minimum amount of slippage to produce a package that has equal tension all the way through. Whether the cones have proper outlines or not is outside this discussion, but on

FRAME Nº	HANK ROVING	GAUGE	DIA. ROLLS			TWIST GEAR	LAY GEAR	CONDITION OF ROVING ROD	ACTUAL LENGTH OF TRAVERSE	CONDITION OF TOP ROLLS			CONDITION OF BOBBIN GEARS
			FRONT	MIDDLE	BACK					FRONT	MIDDLE	BACK	
AVERAGE CONDITION													
REPLACEMENTS													
COST OF REPLACEMENTS													
REPAIRS													
LABOR COST													

An example of the form used in connection with making the survey on fly frames. (See August, September, and November installments for other forms.)

checking some frames where there is a wide difference in tension gears, there has been disclosed the fact that in a number of instances the compound pinion gears were not the same; that the bottom cone gears were not the same; that the lay gears were not the same; that the frames did not start the doff with the belt in the same position as other frames that had the same pinion gears and bottom cone gears; also the cone belts were not the same width due to their being rubbed by the belt shipper at each change of the traverse. Consequently, when the rack was run back at the beginning of the doff the effective widths of the belts were not the same, furthermore several changes of the traverse were made before the shipper moved the belt along the cone.

The taper gears are generally found to be uniform except in instances where experiments have been made and the correct gear not replaced afterward. In a number of instances it is found that the taper of the bobbins has been changed to increase the amount of roving on the bobbin; the idea is good provided the bluntness of the taper does not cause the roving to slough-off and cause enough waste to offset the advantage of more roving on the bobbin.

A check of the break draft gears is not likely to show any difference. Even if found to be different it is doubtful that any damage would have been caused provided the change has not been too extreme, however this point should be checked to insure uniformity.

Blunt skewers, broken skewers and skewer steps broken or missing are not likely to cut a big figure in the operation of a card room, but level creels with good skewers are a big help to a frame hand when the roving is being set in, because it is less likely that there will be short singlings to cause trouble in later processes. Skewers that are bad should be counted and the condition at this point rated in the proportion to those that are good and those that should be replaced.

Traverse Motion

The length or width of the leather on the top rolls is the maximum amount that could be expected of the traverse motion, however, it is not practical to set the traverse motion to make the full width of the leather roll as the rolls do not make an exact fit to the cap bars and any effort to make the traverse motion equal to the width of the leather is likely to cause the roving to run out the side. The actual length of the traverse should be measured by noting the discoloration on the top roll or by putting in a new roll and marking the length of the throw, keeping in mind that some types of motions give a direct traverse and others do not. Whatever the amount of the traverse, it should be noted and if possible increased so that it takes in the top roll within at least one quarter of an inch of each end of the leather. Where the traverse is found to be short, the reason is either the motion has worked loose or has been shortened because some of the roving guides have been bent to the side or the holes in the guides are too big. The remedy for these faults are easily seen and not a great effort is needed to correct it. A certain smart mill man of today makes a practice of giving particular attention to the traverse motions in the mills under his supervision, having had this point drilled into him by his father who attributed his own success to giving traverse motions full attention. Probably the truth of the success was attention to points that are generally considered minor details.

The condition of the top rolls is a point that must be determined by the opinion of the person making the check and rated according to this opinion. Good rolls tend toward making good running work and here seems to be a poor place to lean backward to save money; rolls that are rough, oil soaked, grooved or hollowed should not be allowed in the frame.

In looking over the flyers, the number that are sprung should be counted, at the same time it should be determined whether the spring condition is caused by speed or whether the frame hand is running the frame after it has knocked off when the bobbins are full. Some enterprising frame hands will do this without any thought as to the damage being done by the roving being stretched if the stock rubs against the legs of the flyers or the damage being done by springing the flyers. The wear on the let-on or where the flyer fits on the spindle should be determined by comparison with a new flyer and spindle, at the same time the pins should be inspected to see how much they lack fitting the slot in the spindle; a worn condition at these two places should be rated accordingly. While looking over the flyers, the pressers should be given particular attention to see how many are bent up or down or have been flattened. Pressers that do not have the same curvature will not

allow the same tension on the roving and a great many soft bobbins can be traced to such condition.

Spindles and bolsters are often found so badly worn that there is an eccentric motion at the top of the flyer that will do as much damage as a sprung steel roll. The condition of these parts should be rated according to the best judgment of the person making the check.

The spindle shaft gears, spindle gears and other gearing of fixed type is perhaps a condition that cannot be easily remedied or improved without an outlay of considerable money, however if there is evidence that the condition of these gears is causing bad work or loss of production then tests should be made to support the evidence before any recommendation is made to have such gears replaced. In any event, the condition of the gearing should be rated according to the best judgment of the checker.

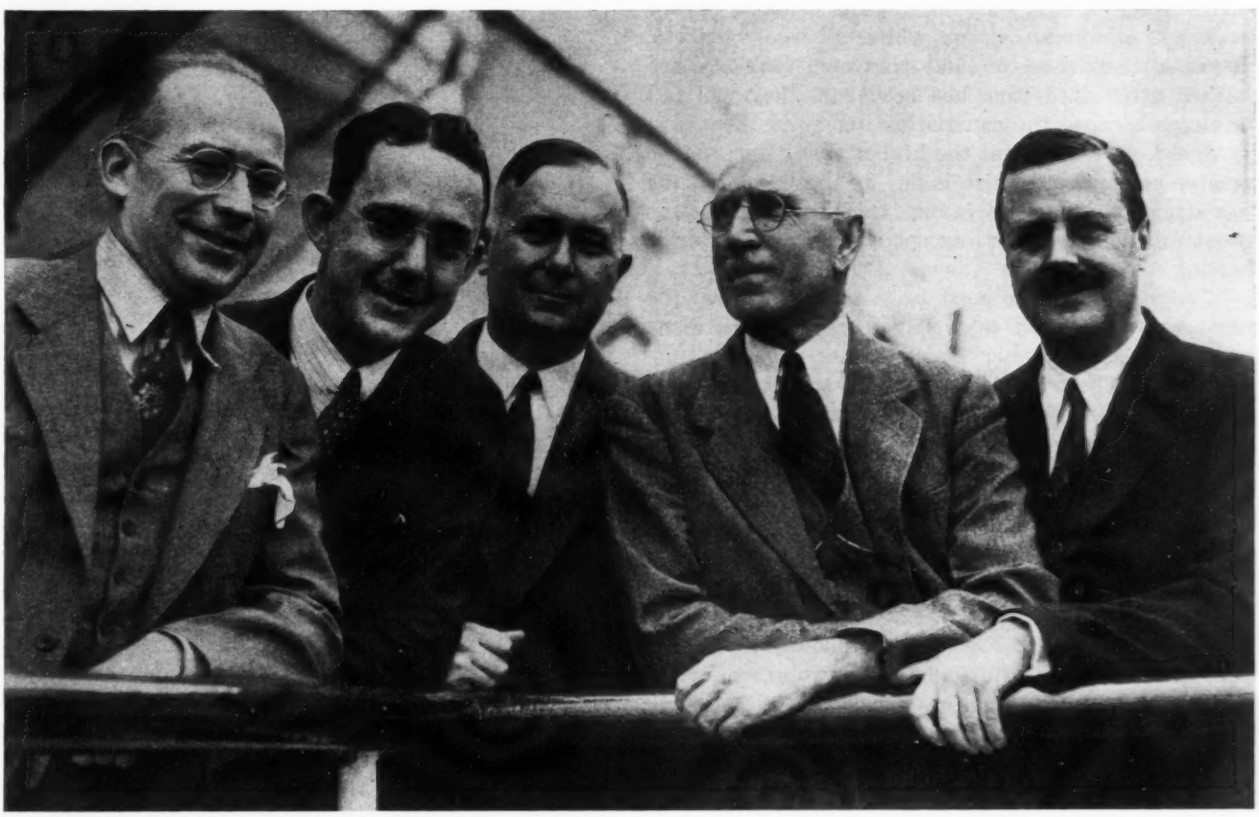
In checking the sprung condition of the top cone it would be best to determine whether the shaft is sprung or if the eccentric motion is caused by a set screw having come loose and having forced the cone off center. Such a condition will cause the bottom cone to jump, making it possible that the cone belt will slip. At the same time it is a good idea to see whether the top and bottom cones are in line.

The roll beam should be checked to see whether it is properly lined and level; in case it is found to be out either way then the amount should be recorded.

No doubt there are many more items in the card room that are important enough to be included in a survey such as this. At the same time there may be listed here items that in the ordinary run of events would not be considered worth while. In the event that it is not possible to turn the making of a survey over to individuals who do nothing but make a survey, it might prove to the mill's advantage if the headings were made and the overseer checked at least one frame a day. As there are approximately 300 working days in a year and the average mill does not have over 300 machines in the card room, it seems possible that such a schedule would meet the requirements of The Scavenger Roll's suggestion that each mill be periodically analyzed.

(This concludes a 4-part discussion.—The Editor)

Cotton Textile Mission Bound for Japan



Shown above are the members of the Cotton Textile Mission which sailed for Japan on Christmas Eve aboard the Chichibu Maru. These men will seek a voluntary regulation by Japanese manufacturers of their rapidly increasing exports of cotton goods to this country. Left to right the members are: Claudius T. Murchison, New York, president, The Cotton-Textile Institute, Inc.; Robert W. Philip, Atlanta, Ga., editor COTTON; Cason Callaway, LaGrange, Ga., chairman of the Callaway Mills; Donald Comer, Birmingham, president, American Cotton Manufacturers' Association; and Harry L. Bailey, New York, president, Wellington Sears Company . . . .

Finding the Percentage

Size in Warps

In which the author shows how the percentage size may be quickly calculated as each beam is doffed.

I WOULD like to submit for the consideration of your readers a discussion on a simple method of obtaining the percentage of size and gain, if any, in moisture content in sized warps as each warp is delivered from the slasher; it is by use of a chart and the data of the percentage of size and stretch from the set.

The chart, when completed, is so simple that any competent slasher man can keep his own records.

We would like to have each warp contain a certain percentage of size and moisture and a minimum of stretch. So in recording each beam separately, we know whether or not we are running an even percentage of size, whereas, in checking set by set we do not know what the individual warp contains.

In using this system in checking up on our warps we may find that there is a greater variation than we deem necessary. There are several things that may cause this.

Blankets. They become hardened and squeeze the size out of the yarn instead of dressing it into the yarn. We find that washing out the blankets once a week will eliminate this on white, all wool blankets. However, if part-cotton and part-wool blankets are washed after dyed yarn has been run, they will fall to pieces because the caustic has tendered them.

Speed. We find that the higher speed we run, the greater percentage of size is put on the warp and the less stretch there is. It is important to run the same speed for the entire set, except while the cylinder is heating.

Cooking. The size must be mixed and cooked the same way each time and should measure the same number of gallons when finished.

Steam. There may be too much water in the steam or the traps in the cylinders may not be functioning properly.

Fig. 1 is a good form to use in recording and working out data on the set.

Fig. 2 is a simple chart showing yards per pound for given yards and pounds, and is to be used in conjunction with Fig. 1 to get the per cent size for each beam.

An explanation of Fig. 2 is as follows: In this report there are four principal figures we are to arrive at, per cent size for each beam, per cent size for the set, and gain, if any, in moisture content and stretch.

Yards. The yards per loom beam are recorded by a clock on the front delivery roll, or by counting the cuts per beam with known yards per cut.

Tare. Empty loom beams should be weighed accurately and the weight marked on the heads.

Gross. The best way to obtain the gross weight is to use platform scales and push the truck and the beam on and then allow for the weight of the truck.

Net Weight. The net weight is obtained by subtracting the tare from the gross weight. This will give the pounds of yarn for the yards recorded. Divide the pounds into the yards to get yards per pound, which is the basis used in the chart.

Working figures to obtain yards per pound relative to percent, to be used in the chart (Fig. 2), follow:

20s yarn; 2,400 ends; 15,000 yards; 1 per cent stretch.

$$\frac{2{,}400 \times 15{,}000}{20 \times 840} = 2{,}143 \text{ pounds, the weight of unsized yarn.}$$

To get weight of the set after sizing, divide the weight of unsized yarn by 100 minus the largest probable percentage of size on yarn. As 100 — 13 = 87 per cent.

15,000 yards in the set plus 1 per cent stretch (adjust the per cent stretch to individual conditions) is 15,000 + 150 = 15,150 total yards in the finished set.

$$\text{Then: } \frac{\text{Weight of set } 2{,}143}{.87 \text{ (for 13 per cent)}} = 2{,}463 \text{ pounds of yarn sized.}$$

$$\frac{15{,}150 \text{ yards for set}}{2{,}463 \text{ pounds of set sized}} = 6.15 \text{ yards per pound at 13 per cent.}$$

Following this procedure in working out the whole range for the chart we have:

2,143 pounds	15,150 yards	Yards per pound	Per Cent Size And Increase, If Any, In Moisture Content
87	2,463	6.15	13
		6.18	12½
88	2,435	6.22	12
		6.25	11½
89	2,408	6.29	11
		6.32	10½
90	2,381	6.36	10
		6.39	9½
91	2,355	6.43	9
		6.46	8½
92	2,329	6.50	8
		6.53	7½
93	2,304	6.57	7

Now notice the first beam recorded in Fig. 1; it has 940 yards and 148 pounds net weight. Looking at the chart (Fig. 2) we see that 940 yards and 148 pounds is 6.35 yards per pound. The closest figure for this is 6.36 yards per pound, which is 10 per cent size; this is shown in the upper right-hand corner of Fig. 2. The same procedure is followed in making up the entire report.

The reader will note that the chart (Fig. 2) reads "Per cent of size and increase, if any, in moisture content." This too, is one of the purposes of the chart, to inform the slasher tender when he is running a higher or lower percentage of moisture content than he desires.

After tests, the slasher foreman will have his moisture content regulated and from then on he will know that the variation is due to the size content and not moisture content.

Percentage of size for the set. When the set is run off and all the data are recorded, the yards and pounds are added up. The hard waste is added to the net pounds of sized yarn and the soft waste is

DATE

SET Nº	YARN Nº	Nº ENDS	YARDS	SPEED Y.P.M.	SET WT	LBS. STARCH
1150	20	2400	15000	38	2143	130

LBS. COMPOUND	SOFT WASTE	HARD WASTE	KETTLES MADE (145 GALS. EACH)
30	5	3	2

SIZE AT	START	FINISH
VAT	0	65
#1 KETTLE	0	10
#2 KETTLE	0	0
#3 KETTLE	0	27
		102

YARDS	TARE	GROSS	NET	STEAM	PERCENT
940	100	248	148	7	10
940	94	242	148	5	10
940	88	235	147	5½	9½
940	90	237	149	4½	11
1000	91	247	156	5	10
880	94	232	138	5	10
880	91	230	139	5	10½
880	85	225	140	4	11
940	87	235	148	5	10
940	84	230	146	5½	9
940	92	233	146	5½	9
880	96	236	140	4½	11
880	89	230	141	4	12
880	93	233	140	4½	11
940	93	242	149	4½	11
880	90	230	140	4½	11
410	85	150	65	5	10½
15,090	1542	3922	2380		10.27

2 × 145 = 290 Made
102 Left
188 gals used

160#/145 gals = 1.10# per gal × 188 = 208# used

208 − 18% = 171# Dry solids

2143 − 6% = 2010# Dry yarn

2181# Dry wt Delivered

2383# Delivered Inc. Moisture

−2181

202# moisture / 2383# Del = 8.47% Moisture in yarn Delivered

Stretch

Grey − 15000 yds / 2143# × 5# waste = 15000 / 35 / 14965

Finish − 15090 yds / 2380# × 3# waste = 15090 / +19 / 15109

15109 yds finished
14965 " grey
144 " stretch

144 / 15109 = 95% stretch

+3 hard waste
2383
2143 Less 5# waste 2138
245# increase

245#/2383# = 10.27% increase in yarn moisture content

171# Dry solids / 2181# Dry wt = 7.84% size added

8.47% Moisture Less 6% = 2.47% increase

2.47% plus 7.84% = 10.31% total increase in weight

Fig. 1. Form for recording data.

deducted from the weight of the unsized yarn. The difference between the final weights is the increase due to sizing. This difference times 100 divided by the sized pounds equals the percentage of size for the set (as shown at the bottom of Fig. 1).

Note that we record set number, yarn number, number of ends, yards, yards per minute, set weight of unsized yarn, pounds of starch used, pounds of compound used, soft waste, hard waste, and number of kettles of size made. This is a record to file for future reference.

Loss or gain in weight over solids used. We record the gallons of size we have at the beginning of the set, the number of kettles made at 145 gallons each for the set, and the balance left at the end. In the illustration, we show none at the start, two kettles made at 145 gallons each (which is 290 gallons made), and 65 gallons left in the vat, 10 gallons in No. 1 kettle and 27 gallons in No. 3 kettle; this makes a total of 102 gallons on hand at the end. Then 290 gallons minus 102 gallons leaves 188 gallons that were used.

For each kettle we use 130 pounds of starch and 30 pounds of compound, which equals 160 pounds of solids per kettle. 160 pounds of solids divided by 145 gallons equals 1.10 pounds of solids per gallon of size. Then 1.10 times 188 gallons used equals 208 pounds of solids used.

Since the test shows the percentage of size and increase, if any, in the moisture content; what is the actual percentage of size added and what per cent is moisture? We know the pounds of soft yarn and the pounds of solids used, including moisture. The yarn contains approximately 6 per cent moisture, the starch 11 per cent and the compound 49 per cent. (By test.)

130 pounds starch at 11 per cent equals ___ 14.3 pounds moisture
30 pounds compound at 49 per cent equals 14.7 pounds moisture

160 pounds solids per kettle equals ..... 29.0 pounds moisture

29.0 pounds divided by 160 pounds equals approximately 18 per cent moisture content in the solids.

2138 pounds of soft yarn less 6 per cent moisture equals ___ 2010 pounds of dry weight yarn.
208 pounds of solids less 18 per cent moisture equals ..... 171 pounds of dry weight solids.
Total dry weight delivered from slasher ..... 2181 pounds.

2383 pounds of yarn delivered including moisture.
2181 pounds of yarn delivered excluding moisture.

202 pounds of moisture in yarn delivered, or 8.47 per cent

171 pounds of dry solids used divided by 2181 pounds of dry weight delivered equals 7.84 per cent size added.

8.47 per cent moisture in the finished yarn less 6 per cent in the soft yarn equals 2.47 per cent gain in the moisture content. 7.84 per cent size added plus 2.47 per cent moisture gain equals 10.31 per cent total increase in weight.

Stretch. Arriving at the stretch for the set is simply a matter of subtracting the yards at the start from the yards at the end, with the waste considered.

A fairly accurate method of obtaining the yards of stretch is known. The yards and weight of the unsized yarn being known, it is a matter of dividing the pounds into the yards to get the yards per pound. Multiply this figure by the pounds of waste and we have the yards of waste. Deduct this from the yards at the start and we have the yards actually used in the set. The same applies to the sized yards, except the

20's YARN, 2400 ENDS, 15000 YARDS, 1% STRETCH

LBS. PER BEAM	YARDS PER BEAM																	
	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990	1000
125	6.84																	
126	6.59																	
127	6.55	6.62																
128	6.48	6.57																
129	6.44	6.52	6.59															
130	6.38	6.46	6.55															
131	6.34	6.41	6.49	6.57														
132	6.29	6.36	6.44	6.52	6.59													
133	6.25	6.32	6.40	6.47	6.54													
134	6.20	6.27	6.35	6.42	6.50	6.57												
135	6.15	6.22	6.30	6.37	6.45	6.52	6.60											
136	6.11	6.18	6.25	6.32	6.40	6.47	6.55											
137		6.14	6.20	6.27	6.35	6.42	6.50	6.57										
138			6.16	6.22	6.30	6.38	6.45	6.52	6.59									
139			6.12	6.18	6.26	6.34	6.40	6.47	6.55									
140				6.14	6.22	6.29	6.35	6.43	6.50	6.57								
141					6.17	6.24	6.31	6.38	6.45	6.52	6.60							
142					6.13	6.20	6.27	6.34	6.41	6.47	6.55							
143						6.16	6.22	6.30	6.37	6.44	6.51	6.58						
144						6.12	6.18	6.25	6.32	6.40	6.46	6.53	6.60					
145							6.14	6.21	6.28	6.35	6.41	6.48	6.55					
146								6.17	6.24	6.30	6.37	6.44	6.51	6.57				
147								6.13	6.19	6.25	6.33	6.40	6.46	6.52	6.60			
148									6.15	6.21	6.29	6.35	6.42	6.48	6.55			
149										6.17	6.25	6.31	6.38	6.44	6.51	6.58		
150										6.14	6.20	6.27	6.34	6.40	6.47	6.54	6.60	
151											6.16	6.23	6.30	6.36	6.42	6.49	6.56	6.58
152											6.12	6.19	6.26	6.32	6.38	6.45	6.52	6.54
153												6.15	6.22	6.28	6.34	6.41	6.48	6.50
154													6.17	6.24	6.30	6.37	6.43	6.45
155													6.13	6.19	6.26	6.33	6.39	6.41
156														6.15	6.22	6.28	6.35	6.37
157															6.17	6.24	6.31	6.33
158															6.13	6.20	6.27	6.29
159																6.16	6.23	6.25
160																6.13	6.19	6.21
161																	6.15	6.17
162																		6.14
163																		

YARDS PER POUND

YDS PER POUND	% OF SIZE AND INCREASE, IF ANY IN MOISTURE CONTENT
6.15	13
6.18	12½
6.22	12
6.25	11½
6.29	11
6.32	10½
6.36	10
6.39	9½
6.43	9
6.46	8½
6.50	8
6.53	7½
6.57	7

Fig. 2. Chart showing yards per pound.

yards must be added instead of subtracted. The difference in the total yards of sized yarn and the total yards of unsized yarn will give the yards of stretch. From this the percentage of stretch may be found.

End Breakage Tests Important Factor in Spinning

By P. B. Parks, Jr.
Superintendent, Erwin Mill No. 5, Erwin, N. C.

THERE is a great deal in this discussion that is elementary, but it contains food for thought for every mill. End-down tests are common practice in many mills; for those, and for those who are just beginning to use them, Mr. Parks gives his method, reasons why, and some of the results . . .

DON'T waste time reading this article if you know what makes the ends come down on your spinning frames. If you are satisfied with the way your spinning is running, save your eyesight for reading something more beneficial. Don't even expect to find here the answer to your particular problem. I have no panacea to offer.

However, if you are not in the habit of running some form of an analytical end-down test, I can safely say that you *can* help yourself by using this time-tested type of trouble barometer.

To be grammatically correct, we should ask ourselves, "How well is my spinning running?", but in plain "cotton-milleese" we usually put it, "How good is my spinning running?" No matter how we ask ourselves that question, the answer, to be an intelligent one, must be based on something more concrete than the fact that we see a good number of spinners sitting down at the end of their frames or that we see a lot of big laps on the scavenger rolls and a lot of perspiration on the brow of a harrowed spinner attempting the impossible task of "keeping 'em up".

It is perfectly true that we can tell by these signs whether our work is running comparatively good or bad, but we can get no insight as to what causes either condition nor to what degree. In short, we need some term which will express the degree of perfection our work is attaining so far as ends down are concerned, and some device or method of determining that degree.

First, as to some term which will adequately convey an idea as to how the spinning is running, I know of no more useful expression than, "Ends down per thousand spindle hours".

The spindle hour is an expression of running time and is arrived at by multiplying the number of spindles being considered by the number of hours which those spindles are operated. Therefore, 1,000 spindle hours could be obtained by running 1,000 spindles for one hour, 500 spindles for two hours, 100 spindles for 10 hours—or any other combination which will equal 1,000 spindle hours.

"Ends down per thousand spindle hours", then, is simply the number of ends, by actual count, which come down in 1,000 hours of operation.

For example, suppose we are observing the ends down on 10 sides. After watching the spinner put up ends for 8 hours on these sides, we find that she has put up 220 ends. Each side has 114 spindles. Therefore $10 \times 114 \times 8 = 9{,}120$ spindle hours of operation. In terms of thousands of spindle hours this can be expressed as $9\ \frac{120}{1000}$ thousand spindle hours or simply 9.12 thousand spindle hours. To determine the ends down per thousand spindle hours we would divide 220 by 9.12 = 24.12 ends down per 1,000 spindle hours.

Now that we have a term to express the way our work is running, let's look at the possibilities of helping ourselves in more ways than by just knowing how good or how bad the work is running.

We want to know not only "how good", but "why". Here is where an analytical end-down test comes in.

To make our end-down test analytical, we not only must keep an account of how many ends come down, but must analyze each end down to determine the cause of its coming down. Of course it is often very difficult to find a definite cause and we find ourselves having to classify a rather large number of ends down as "cause unknown". The smarter and more experienced the test maker is, the fewer mistakes in analysis are made.

By referring to the accompanying illustration of a hypothetical end-down test blank, it may be readily seen that the mechanics of tabulating the ends down are very simple—each mark representing an end down and appearing in the appropriate horizontal column to designate the cause for its coming down.

Avoid These Mistakes

There are several mistakes that should be carefully avoided when making a test of this kind.

First, the person who is making the end-down test should never attempt to make the test on more sides than are operated by one spinner.

This is obvious because of the fact that he can accompany only one person at a time and his analysis must be made prior to the end being put back up. This in turn is true because the dangling end on the bobbin furnishes one of the best clues as to the cause of the end coming down and the spinners breaking off this end of the yarn might destroy valuable evi-

SPINNING END BREAKAGE REPORT

FRAME Nº 26-27-28-29
TEST Nº 132
YARN Nº 9.50
FILLING
WARP ✓
TRAVELER 14 sq. pt. 2½ circle
TOP ROLL COVER Cork

Nº OF SHEET 1
CHECKER John Turentine
DATE July 6, 1936
HOURS RUN 8
Nº SPINDLES 456
SPINDLE HRS. 3648

CAUSES								TOTAL	E.B. PER M. SP. PER HR.
UNCLASSIFIED	𝍸 𝍸	𝍸 𝍸	𝍸 𝍸	𝍸 ///				38	10.4
"								—	
"								—	
"								—	
"								—	
"								—	
END CAUSED BY OTHER ENDS	𝍸 ////							9	2.4
ROVING RUN OUT	///							3	.8
ROVING BROKEN BACK	/							1	.3
BUNCHES IN ROVING	𝍸 ///							8	2.2
SINGLING	𝍸 ///							8	2.2
ROVING RUN TO OUTSIDE OF ROLL								—	
HARD ENDS								—	
ENDS CAUSED BY HARD ENDS								—	
ROVING OUT OF GUIDE								—	
LINT IN TRUMPETS								—	
STEEL ROLL LAP	/							1	.8
TOP ROLL LAP	𝍸 /							6	1.6
BAD TOP ROLLS								—	
DRY TOP ROLLS								—	
FLYING LINT DURING CLEANING-SWEEPING	///							3	.8
TOP CLEARER WASTE								—	
TRAVELERS OFF								—	
TRAVELERS WORN								—	
LINT ON TRAVELERS	////							4	1.1
SLACK BANDS								—	
BANDS OFF	//							2	.5
MECHANICALLY BAD SPINDLES (OUT OF PLUMB, SHAKY)								-	
BROKEN BY OPERATOR	///							3	.8
BROKEN IN CLEANING	/							1	.3
ENDS DOWN AT DOFFING	𝍸 𝍸	𝍸 𝍸						20	5.6
BAD BOBBINS								-	
TRAVELING CLEANER	𝍸 𝍸	𝍸 ////						19	5.2
TOTAL								126	34.54
E. B. PER M. SP. PER HOUR								34.54	

dence. Therefore, the spinner should follow the test-maker and put up the ends only after they have been analyzed. This means the closest co-operation and care must be exercised not to miss a thing.

Another "don't" is not to make a test of too short a duration or on too few spindles, because the more spindle hours involved, the more accurate the reflection of the true condition. Too few hours might give undue emphasis to the running conditions in a certain part of the day or at some particular stage in the filling of a bobbin.

When it cannot be determined with reasonable certainty what caused an end to come down, it should by all means be classified as "unknown cause" instead of being put "somewhere". Strict adherence to this rule will make a test far more

reliable than if guess-work is used.

I have seen an idea used to good advantage which is decidedly worthwhile. During the test a chalk mark is made on the creel or thread-board of the spinning frame back of each spindle as the ends are put up. In this way, any "repeaters" can be found. I have known as high as eight ends to come down on the same spindle during a test. It can be readily understood how easily this can occur without being detected by the spinner when every spindle looks exactly alike.

Furthermore, end-down tests will reveal another situation, which is that not all of the spindles are causing ends down. It will usually be found that the great majority of the spindles will run for a considerable length of time without any trouble, but

The author of this article, P. B. Parks. Another article by Mr. Parks entitled "Loom Stoppage Tests—Why and How to Make Them" appeared on page 44 of the January, 1936, issue of COTTON . . . . . .

that there are a comparatively few of the total number of spindles which are causing most of the trouble. In other words, I believe it is safe to say that in almost any spinning room, a test will reveal that not over 25 per cent of the spindles are causing more than 75 per cent of the ends down. Naturally when it is possible to ferret out and identify the trouble makers, the running of the work can be materially improved by correcting whatever is the cause of the frequent breakage on one of these spindles.

A quick glance at the end-down test illustrated here will reveal the most interesting items at once. The largest item is "Unclassified". This is usually the case and in trying to locate the causes of trouble this item must be overlooked because of its hybrid origin.

Nine ends down caused by other ends in only 3,648 spindle hours of operation is rather high and could be caused by lack of or the wrong type of separators, by too light a traveler, etc.

Eight bunches in the roving and eight singlings are no compliment to the card room.

And so on down the line, we can detect any item abnormally large and theorize as to what could be the answer to remedying the trouble and then after making the indicated changes, we can make another end-down test to see in black and white whether we have really put our finger on the sore spot.

One of the most useful features of the end-down test is the fact that sore spots are so frequently spot-lighted when no one concerned had any idea of their proportion or importance.

In one instance in our own experience, we found by means of the end-down test that we were using a top roller covering which was costing us far too much in ends down, despite the fact that the life of the covering was extremely long and therefore apparently inexpensive.

Whenever there is any doubt as to the relative merits of two different products, settings, etc., the comparative end-down test is very useful.

Suppose that we are undecided whether to use square or round point ring travelers (this is hard to imagine as most spinners and superintendents get violent at the suggestion that their preference isn't infallible). The best way that I know of to definitely find out which is best for one's particular work is to run a comparative end-down test. One way to do this would be to put four or five sides on round point travelers and a like number of sides of the same yarn number on the same spinner on square point travelers. The tester will have two forms—one for each type of traveler—and will use the proper form for the end down which is being analyzed.

Since all other conditions save the travelers used are identical, any sizable disparity in the number of ends down per thousand spindle hours in favor of either of the types of travelers would naturally indicate that traveler to be the best one for that particular use.

Comparative end-down tests can be devised to determine the relative running qualities of two or more lots of roving which have been prepared under different drafts or twists in the card room, varying staple lengths, types of cotton or a multiplicity of other things on which we might want the "low down".

Let us cut out guess work and use the simple, cheap and accurate analytical end-down test. We won't regret it.

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In passing through the machine shop of a large southern mill, we saw a blackboard with the name of an employee written thereon. Upon inquiring the meaning of it, the superintendent replied, "Oh, that's the name of one of the machinists that requisitioned a tool from the tool supply room and broke it. We're just giving him a little free advertising. His name will stay there until the next fellow gets careless, breaks something, and then the name of the new man with the tool he broke will be written in gold letters. Sometimes a man's name will stay there for months before the next fellow forgets that a drill handle isn't a hammer and tears it up. That little blackboard has saved us a lot of money. These fellows in here don't like to see their name up there where visitors always ask what it means."

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One mill has its laboratory truck, used for collecting samples in the mill, equipped with rubber tires so that the wheels will not injure the floor when the laden truck is pushed into the "lab."

Quality Improved by Needle-Point Grinding

By H. G. Lyon

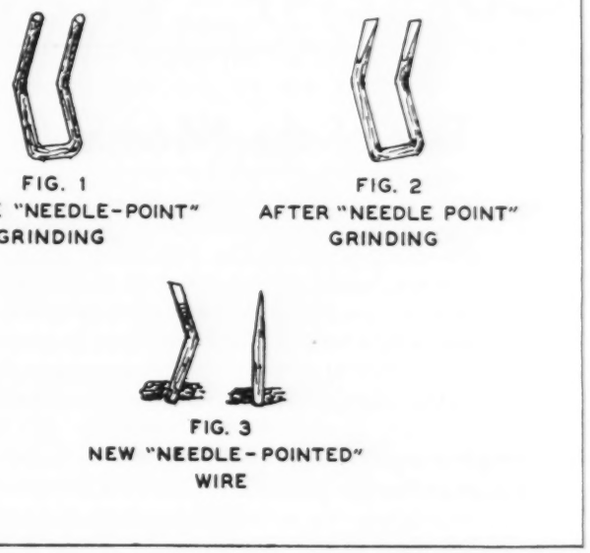

FIG. 1
BEFORE "NEEDLE-POINT" GRINDING

FIG. 2
AFTER "NEEDLE POINT" GRINDING

FIG. 3
NEW "NEEDLE-POINTED" WIRE

Courtesy Bramsfield

WE ALL know that the condition of our clothing, to a large extent, determines the quality of the finished yarn, and when the cards are making neppy and improperly cleaned sliver we find that the yarns produced in the spinning room are of poor quality. Carded sliver full of neps will not, by any process, be put in good condition after it leaves the card; it is therefore essential that the carder see to it that the card clothing is in good condition in order that he may obtain clean sliver, which is produced largely by the sharp teeth of the card clothing.

Among our cards we found several with older clothing that were not producing good work. Our company now has furnished us with a "needle-point" grinder and it has given us good results. For an explanation of needle pointing, I may define it thus: Grinding the sides of the wires to sharpen them as when they were originally put on the cards.

This grinding tapers the wire from the knee to the point, and at the same time the wire maintains its original strength at the base. It creates a carding point because the wire is ground on the sides; the finest carding point possible is maintained.

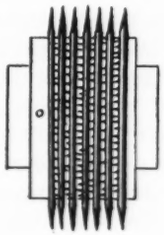

FIG. 4
GRINDING WHEEL

For the grinding, first, we have to remove the feed plate and licker-in, because the grinding machine is bolted to the frame parallel to the cylinder face. It usually takes about 45 minutes to prepare the back of the card for the grinding machine; we then remove the comb and comb boxes, and the coiler head, leaving the frame of the doffer clear for the grinder. This takes from 45 minutes to one hour. Next, we remove the loose and tight pulley of the card in order to put on the slow motion driving pulley for the grinder.

We then bolt the machine to the frame and gauge from the traverse roller to the cylinder with a special gauge to set our machine parallel with the cylinder. Next, we set our automatic feed at the position marked "out" on the brass dial. The time for grinding the cylinder is 4 hours; that is the length of time it takes for the machine to reach from the "out" position to the "in" position on the dial, or to complete its grinding. The cylinder makes about 6 r.p.m. and the doffer 12 r.p.m. during the grinding, and the depth to which the machine feeds the grinding roller into the wire is about 5/32 of an inch, the grinding wheel being fed automatically and very slowly. We grind both the doffer and the cylinder. After grinding with the needle-point machine we set up our traverse rollers and grind very lightly for 4 hours; this gives the wire a new smooth point. We then put in the stock. It takes from 12 to 14 hours to take down, needle-point grind, and set up a card for new stock.

By the needle-point grinding we believe that we get a good sharp wire, resulting in better carding, and the grinding is not expensive, for we will get 5 or 6 years of service from these cards before employing the needle-point grinder again. I might say that most of the wire that was needle-pointed had had from 15 to 20 years service. It is important to remember that cards which have been needle-pointed should not be ground heavy with the traverse grinder, as the wire may be damaged by hooking or running over the sides.

We have noticed the following improvements in our work from the old cards that have been needle-point ground:

1. Less motes in the flat strips; 2. more motes in the mote box; 3. less neps in the sliver; 4. strips better; 5. more fly under the card; 6. doffer strips better; and, 7. a smooth finished sliver.

We have just completed the grinding of 65 cards and have noticed a great improvement in them, and certainly believe that it was well worth our time and the cost of the operation to complete the job; in fact, it is much cheaper than new clothing for the cylinders and doffers.

CURRENT TEXTILE TOPICS ....

Talk of the Month

Now it is a lag in the cotton goods business when sales drop down to the rate of production, let alone below output. But it is not a lag to give concern. In fact, the late 1936 business of the mills brought a welcome letdown from the pressing demand of several months and an interlude that was satisfying also as demonstrating the healthy character of the enormous turnover through the lengthy period of persistent buying on an unaccustomed scale.

Washington again prominent in cotton textile picture

For more than half a year, each month had produced a business in gray goods above the rate of output. The cumulative total of unfilled orders by the middle of December in printcloths alone was estimated at 450,000,000 yards. Mills on gray goods generally were well sold through March and, in view of the trend of things, not anxious to be committed indefinitely ahead.

Buyers Not Covered

Yet at this juncture, it was evident that buyers were not covered beyond requirements. The transition from a condition last spring of low distributor stocks to one of restored inventories befitting a new day of normal demand could not be completed in a moderately short period. Thus at the year-end it was manifest that continued broad buying would be needed early in the current year.

Among the outstanding developments of the past month was the start of covering for the last half of this year by the industrial users of cotton goods. Buyers who normally look ahead to requirements six months in advance began to cover for July to December, or at least to make broad inquiry for goods to be used in their own industries. This movement is significant of the prevailing confidence in an economic upswing of lasting character, in contrast with the false boom of 1933.

Conservatives are always around to caution against optimism, but in business at large the signs are that confidence is sound and not based on optimism. The cotton manufacturing industry has been too busy, perhaps, to bother itself with the long-term trend. At any rate, aside from expressing relief rather than anxiety over the December tapering-off of activity, this textile branch has not given itself up to warnings. It had had too long a spell of depression and doldrums.

In the outside economic spheres, however, there was some tendency to look askance at the rush of business during the last half of 1936 on the score that it was production as against future requirements. If so, that would mean a reaction for demand to catch up. This questioning also had its uses, because it appeared to disclose rather that industrial production was not running ahead of the current or nearby demand. It was typical that retailers indeed in many cases were unable to secure many items that they wanted for the holiday trade.

Legislation Looms Ahead

With the actual business picture assuring for 1937, the cotton industry has come into the new year in a spirit of caution from another angle: that of legislation. The boom of recent months was a mere interlude of freedom of action, with Washington now looming again as a factor in industry. There is much uncertainty over what attitude the administration will take toward industry, in view of the mandate of the election. Some interpret that mandate on particular questions, such as restoration of the NRA and direct regulation of working conditions. That is a far-fetched interpretation of the vote.

"Whether the employers come into this conference (the two-day industrial co-ordination conference in December) or not, we expect Congress and the administration to remember who re-elected them", said Thomas F. McMahon, president of the United Textile Workers. "We expect them to live up to their mandate from labor and, insofar as it applies to the textile workers, this means supporting and passing the National Act."

Most Mills Hold to NRA Schedules

Mill men have been averse to further experiment and the leading cotton trade associations were not interested in the December meeting called by Major George L. Berry, industrial co-ordinator, because they felt that the industry was regulating itself and did not need government regulation. More than 95 per cent of the mills have held to the NRA code schedules, including hour and wage regulations. In fact on the first broad burst of prosperous conditions, they have advanced the wage scale 10 per cent over a wide part of the industry.

Nevertheless, the industry realized before the year-end that it faced new legislative possibilities and may have to make new adjustments under the relations with government. Thus came into being once more a provisional clause in selling of goods. The clause, approved by the Association of Cotton Textile Merchants of New York, provides for adjustments in price on future deliveries in accordance with State or Federal legislation affecting the price of goods on order. The chief hope in the circumstances is that the administration will recognize the inclination of cotton manufacturers to co-operate for the national benefit and steer a course free of radical tendencies which would create unbearable conditions.

New England Mill Situation

COTTON mills in New England came into the current calendar year generally in the most encouraging position since the post-war boom. Stockholders in the mills of the district have been given a new hope from the remarkable change that came to their properties through the 1936 boom in cotton goods of the national industry. Profitable conditions have been reflected in resumption of dividend payments by companies that had not paid for years and, unless unseen obstacles arise, the future will be healthy for some time.

Printcloths led the march forward of the past year, with its extraordinary national volume in the fall months, but fine cotton goods took up the pace and relatively were more active later in the general movement of big buying. Leading manufacturers of New England were still doing a broad business right into the last month of 1936, with no evidence of weakening demand.

Buyers Eager—Sellers Wary

Buyers were eager to operate beyond deliveries that many manufacturers were willing to accept. The mills were in the unusual position of being able to pick the business along lines of production that they preferred to follow. Some buyers wanted to operate in the fall of this year. Sellers were wary of the far distant business, lest they miss profits of higher future prices on a rising market, or run into cancellations on some unexpected disturbance to the situation.

Striking contrasts were seen in the years 1936 and 1935 through New England. Perhaps it were more accurate to set 1936 off against a period of ten or a dozen years preceding, but 1935 was the culminating period of a disastrous long spell. The closing of the great plant at Manchester, N. H., of the Amoskeag Manufacturing Company in September of 1935 appeared to be a calamity. The sting has been taken off by a recovery which has brought new tenants for much of the plant.

Idle mill property has assumed a new value in this district since the industry has entered a period of volume business. Reconstruction is under way in various directions. The move of the Pacific Mills in extending its vast properties by leases of 4 large mills of the Amoskeag plant outstanding, but proves to be only one of numerous projects in rehabilitation that have been started.

Amoskeag Industries, Inc., the new organization formed to take over the Manchester plant, secured the properties at an opportune time as it now appears. The outright purchase of the Coolidge mill, a plant containing 587,000 feet of floor space and warehouses with 292,000 feet, has been made over by the Chicopee Manufacturing Company, subsidiary of Johnson & Johnson, for the manufacture of gray cloth.

At last reports, Pepperell Manufacturing Company was considering purchase of the long idle plant of the Somersworth Manufacturing Company, at Somersworth, N. H. Besides this and the other moves of prominent cotton manufacturing companies mentioned above in the way of expansion through acquisition of new properties, several projects of restoration by producers of their own mills have been developing.

Among such is the re-opening of the Barnard Mill at Fall River, which had been closed for eight months. The move for renewal was reported late in November and subsequently a statement by counsel indicated that operations would begin Dec. 21, with about 400 workers. New capital was raised, with some operatives among the subscribers. The plant was converted a few years ago from coarse to combed yarn construction. It is equipped with 552 box looms for turning out curtains and fancy materials.

Double Improvement

Cotton mills of Massachusetts are reacting to a double improvement of the past year. The improvement in business since spring has brought the cotton spinning rate on the average to the highest point since the post-war boom. This is consistent with the activity for the industry at large. But the situation in this state, long in a class by itself and now third in the country for spindles in place, has been made favorable for expansion as well as broad activity by the new tax basis established in 1936. A toll of more than 50 per cent was taken under the former conditions.

Finishing of cotton goods, an important adjunct of the industry in this section, was later than manufacture of gray cloths to improve. The finishing industry was not in good shape up to late in the fall. Competition had been keen and prices afforded very narrow margins or no profit at all. Steps were taken before December, however, to remedy this condition. Sharp advances were made not only to cover increased wages and other growing costs, but to widen finishing margins. This move was in line with the tendency in all fields to get entirely away from past ideas of prices, an evidence of the well rounded character of recovery.

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Textile Chemical Products Company Moves to New Home

Textile Chemical Products Company, Greensboro, N. C., have moved their headquarters, in order to secure larger accommodations, to the building on the Greensboro-High Point road known as the Carolina Body Plant. The company is materially enlarging its facilities for sulphonation and manufacturing of various specialties. There will be a muchly expanded laboratory also under the supervision of S. V. Valjavec, chemist, who has come with the company recently; he has had wide experience in the trade and is a graduate of Columbia University. The sales organization has been increased by the addition of Hal W. Field, Atlanta, Ga., who has taken charge of the southern territory consisting of Georgia, Alabama, and Mississippi, and Cato M. Littleton, Charlotte, N. C., who is devoting his attention to the hosiery trade in North Carolina. Mr. Valjavec is located at the home office.

"THE SITUATION"—as Seen Across an Executive's Desk

January 1, 1937.

THE CALENDAR shows that Christmas has come and gone . . . but the joke was on Old Santy Claus. He got mixed up on his seasons and has been hanging around the cotton mills for some months past. But now that we are in the shiny new year it is good to look back on the events of the old worn-out one: there have been so many changes in the industry during the past twelve months that a chameleon has nothing on us! With the Supreme Court's decision on the AAA with its resulting chaotic buyers' and sellers' controversies over discounts and refunds and whatnots . . . hamstrung by impending legislation which hampered all moves in the direction for progress . . . the first few months of 1936 limped by gloomily. The spring months showed little better hope and there was ahead of us, we thought, the annual summer slump. All of a sudden, and without any warning, things looked brighter. Congress adjourned, the Japanese tariff regulations went into effect (neither of which may have had any real influence on the general outlook), perhaps these two things and the upturn were co-incidental but at any rate in June we felt better. In July we were stronger but not so sure of our wobbly legs after a long illness . . . August and September saw us well and happy, in the fall months we were able to hit the trail in our old time stride. The textile industry during the last 6 months of 1936 went through a period of activity which defied the usual annual cycles, ignored the expected summer lull. Today, many mills are completely out of the red, and few are left with figures on the wrong side of the ledger. Orders on the books will carry the textile industry far into the middle of 1937; wages have been raised; actual properties of the mills and villages have been spruced up.

Smart Buying and Selling

Now, about those unfilled orders for '37: some carry a lot more grief than profit for they were taken in a burst of enthusiasm by folks who thought this activity was only a spurt, who refused to take into account boom psychology angles such as increased labor costs and increased costs of all raw materials. They may muddle through—at least for the present their employees are busy and perhaps these executives will learn a never-to-be-forgotten lesson built on an old maxim: "haste makes waste".

The way to sell cotton goods now is to be a cagey trader and sell like the feller who planned to swap an old car for a new one. Each day automobile salesmen brought in better offers of a trade-in on his old car. Each day he said nothing and filed away the new and better offers. A couple of weeks later one salesman in desperation to close the deal offered to take his old car in on the new one for the full value of the new car and to pay him a bonus for the old car! The buyer got a new Packard and cash money by just keeping quiet and letting the other fellow raise all the previous offers.

Bad Business

The steady demand for cotton goods of all types, with prices rising to the point where they are reaching actual values of the goods delivered, with clamor on all sides from customers for "early delivery", "delivery sooner than specified", "immediate delivery" . . . tends to make the industry indulge in a clockwise movement which spells danger to their present splendid position. First, because many small decrepit units which retired from active mill production a decade or so ago have been cleaned up and put back into operation, second, because larger units of idle spindleage such as the old Amoskeag mill have been leased and will operate again; third, because some individualists who refuse to be conformists, are greedily snatching at the whole cake instead of taking their allotted slice like good little boys, are going ahead with three shifts or are adding another 10 hours or so to each of their two shifts. Of course, as far as the localities of the rejuvenated mills are concerned, there is much rejoicing for they are receiving the benefits of the present stimulus of payrolls—but taking the situation by and large it is dangerous. This sudden flood of goods on the market, testified to by the figures of cotton consumption in this country, averaging 100,000 bales more per month than in the same months of 1935, are very apt to dam up the steady flow of good business and put us in the same fix we were in for so long . . . too much stock and too few customers.

The position in which the industry stands today is due to co-operation in balanced production, which has deflated stocks to a negligible point, and consequently, has put the industry into the sellers market. Once there were prices that could be asked that fully covered cost of production, allowed depreciation, included a profit, and the rest of the business followed in natural sequence. For, in spite of all the doctrine preached by certain organizations, industry is founded on a dollar and cents profit . . . and labor is dependent upon industry for its existence. It is an economic fact that nothing can change .

Associations Co-operate

With plain common sense on the part of individual mill executives, and under the corporate guidance of the various trade associations which are in operation today, this situation can continue without interruption for an indefinite length of time.

Feeling this, the carded yarn manufacturers of the industry realized it needed closer contact with other members of this group. As a consequence, a meeting was held early in December at which plans were formulated which will establish a central office in Charlotte, N. C., which will serve as a clearing house for carrying out plans for improvement in its

THE BEST HOSE

FOR CLEAN-UP WORK

SCORES of mills tell us that Goodyear Wingfoot Cord Air Hose is the longest-wearing they have ever used. You have only to see how it is made to understand why.

It has a double cover! A heavy layer of tough cover stock is built *under* the outer braid of its high-tensile cotton cord carcass. Even when the outer cover has completely worn away, this inside secondary cover keeps the hose serviceable—*giving you double wear!*

Both inner and outer covers are specially compounded to resist abrasion and cutting by concrete floors, machine frames and tools—a further guarantee of long service. Its tube resists the deteriorating action of warm and cold lubricating oils that may accidentally pass from the compressor. Mill hands like it because it is light weight, flexible and easy to handle.

This special clean-up hose is a product of Goodyear's own long experience with cotton. Like all Goodyear products for the textile industry it is specified in the correct size for your operation by the G. T. M.—Goodyear Technical Man. Let this practical textile man demonstrate its time- and money-saving advantages to you. To bring him to your mill, write Goodyear, Akron, Ohio, or Los Angeles, California—or the nearest Goodyear Mechanical Rubber Goods Distributor.

various phases of activities and work in the future.

Don. P. Johnson, of Wake Forest, N. C., was elected general chairman of the group, Sidney P. Cooper, past chairman for two years will be vice-chairman. The North Carolina chairman as elected is A. K. Winget of Albemarle, N. C., and his committee members are J. A. Moore of Edenton, Karl Bishopric of Spray, Hyman Battle of Rocky Mount, and F. A. Thompson of Lenoir; South Carolina chairman is S. H. Lander of Anderson, with committee members C. C. Stokes of Cheraw, and George A. Anderson of Fork Shoals; Georgia chairman is W. N. Banks, with committee members Clifford J. Swift of Columbus, I. C. Milner of College Park; Alabama and Tennessee (combined) chairman is Bragg Comer of Sylacauga, W. P. Hazelwood of Jacksonville and A. G. McMillan of Talladega as committee members. The New England chairman is Phillip Dana of Westbrook, Maine. At this time no definite decision has been made as to office personnel.

Another lusty manner in which the industry asserted itself was in declining to attend the Berry Conference in Washington, feeling that the Major could hardly be qualified as either a capable or impartial co-ordinator between industry and labor, since his capabilities have been disproved in the past and his presidency of a union disqualify him for the latter. Industry prefers Federal aid in the maintenance of its own standards of hours of operation and wages to employees rather than actual Federal regulation. With the rich experiences of the past three years of both mandatory and voluntary co-operation along this line the textile industry, under its own leaders, is certainly able to work out its own salvation.

Other Developments

Among the other and important recent developments in the cotton industry is the action taken in the sales end of the game by the adoption of clauses by several groups for protection against increased legislative costs:

That of the carded yarn groups: "The price on any undelivered portion of this contract is subject to increase or decrease due to any governmental action or further legislation and/or governmentally accepted codes, affecting sellers' costs, and shipments may be modified to the extent necessitated by any such action, legislation, and/or codes" was presented to the members of this group at the Charlotte, N. C., meeting.

That of the Association of Cotton Textile Merchants of New York was recommended to its members as follows: "Price on any portion of this contract, upon which title has not passed, is subject to adjustment by the amount that sellers' cost is increased or decreased by any Federal legislation affecting wages or hours of labor or hours of operation, enacted hereafter, or by similar State legislation affecting a majority of active cotton spindles in the United States. Any such adjustment shall be limited to 10 per cent of contract price, and with respect to weekly operation schedules shall be measured from 40 labor hours and 80 loom hours.

"Deliveries under this contract may be prorated, and balance then due extended, to the degree necessitated by Federal or any State legislation affecting seller's production. Such proration and extension shall be measured from weekly operating schedules of 40 labor hours and 80 loom hours." Said Ray Bell, president of the Association: "In recommending adoption of the clause throughout the cloth market the association believes it gives adequate protection to the mills against such contingencies as may now be a source of renewed confidence on the part of the buyers."

Topping the consternation which was abroad among all mill executive offices at the complicated appearance of the blanks for the filing of returns on the windfall tax was the allowing on the part of some state collectors (notably S. C.) further extensions on the payment of the tax, and requirement on the part of others (North Carolina and Georgia) for tentative returns on the tax. The tax, originally due September 15, was extended to December 15 by a blanket extension from Washington. However the question has been raised that since any windfall was received by any person or company, and it was received in 1936, the payment would come under the 1936 payment year due March 15, 1937.

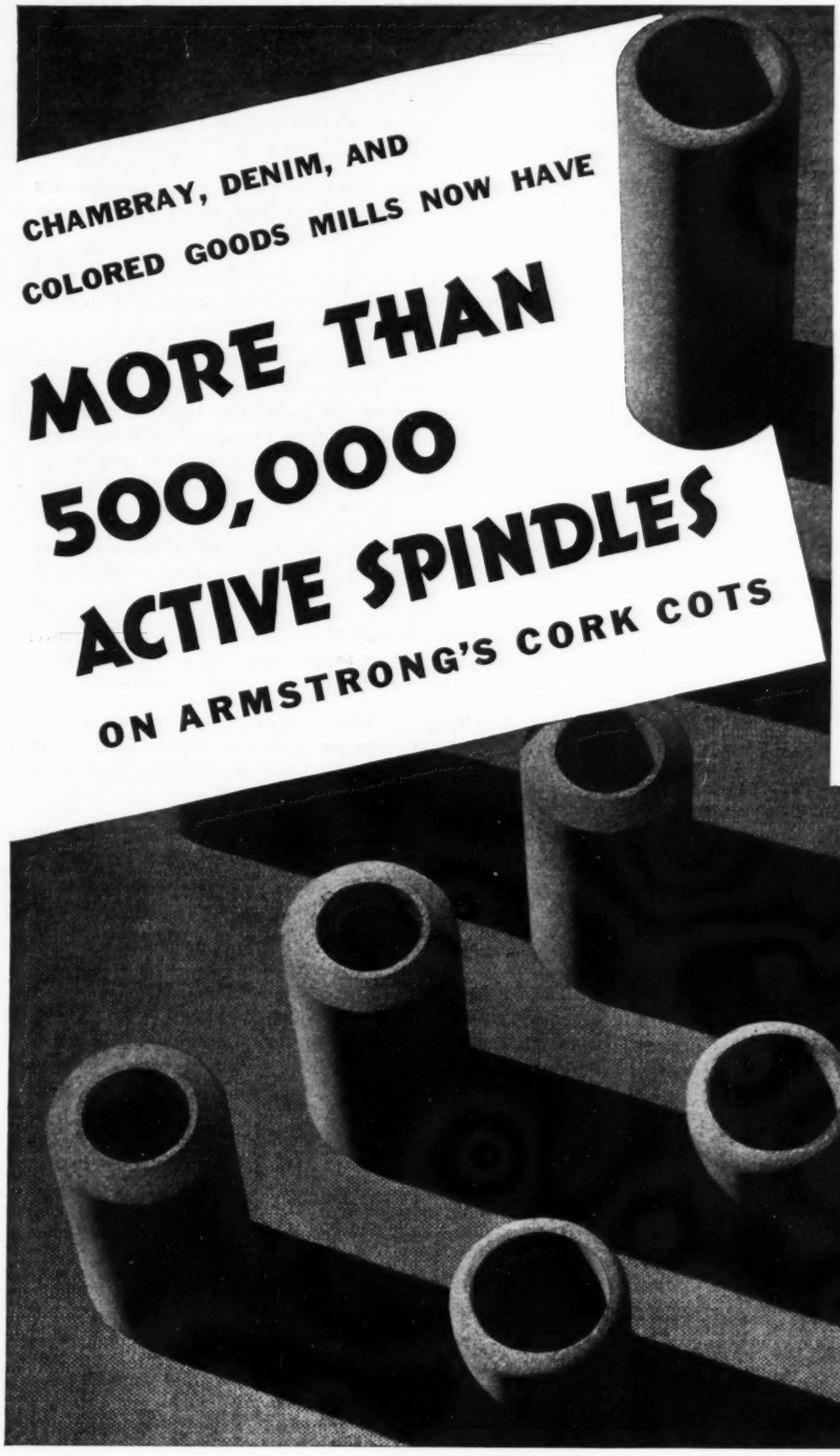
And—while some were postponing their filing of this tax others had gone so far as to file and to suc, The Federal government winning one victory in Indiana on efforts to collect the windfall tax when Judge Robert C. Baltzell of the Southern Indiana District court held the tax constitutional. This was the first such ruling in the country and will probably be held as a precedent in upholding the collection of the taxes, both windfall on cotton textiles and similar taxes on money refunded to coal companies after the Guffey Coal Bill was declared unconstitutional.

Judge Robert N. Pollard in the Federal District Court at Richmond, Va., did not rule on the constitutionality of the tax but did, on December 1, grant a temporary injunction restraining the Collector of Internal Revenue in Virginia from collecting windfall taxes from the Rapidan Milling Company and the Mine Run Roller Mills; coincidentally, in another Federal District Court at Harrisburg, Va., Judge John Paul issued a similar order in restraining the collection of windfall taxes from the Shenandoah Mining Company, and expressed his own doubt that the tax was constitutional, saying he would "like to hear the government's position on that point".

Cotton production (growing) has steadily moved westward. Now nearly three-fourths of the total yearly crop is grown west of the Mississippi.

There is a monument to the boll weevil in Enterprise, Alabama. So devastating was the work of this pest one year that farmers began raising products other than cotton. Diversification was the salvation of the community so—the monument to the cause of it—the weevil.

The textile industry was kicked removing a splinter from the foot of the New Deal.



CHAMBRAY, DENIM, AND COLORED GOODS MILLS NOW HAVE

MORE THAN 500,000 ACTIVE SPINDLES

ON ARMSTRONG'S CORK COTS

PROOF of the outstanding advantages of Armstrong's Seamless Cork Cots in spinning any kind of yarn is this: today more than twenty-five percent of all active spindles in the industry are on these cots.

Chambray, denim, and colored goods mills are a good example. In this one classification, 553,178 active spindles are equipped with Armstrong's Cork Cots.

Although as economical to buy as any other material, these cots offer far greater savings—in low assembly cost with no waste, fewer roll changes, longer life—stronger, more uniform yarn. In many mills, Armstrong's Seamless Cork Cots have cut roll covering costs 50% and more!

An Armstrong representative will be glad to show you the benefits these cots offer in spinning *your* type of yarn. For full information call the nearest Armstrong office or write direct to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

FOR SPINNING AND CARDROOM ROLLS

ARMSTRONG'S EXTRA CUSHION SEAMLESS CORK COTS

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

What the Southern Mills Are Doing

As a further step in their modernization program, the Carolina Cotton & Woolen Mills, Spray, N. C., have begun the consolidation of their Nantucket wide sheeting plant at Spray with the Wearwell Sheeting Mill at Draper, four miles from Spray. This will entail the immediate construction of a two-story spinning mill, 300x150 feet, adjacent to the present Wearwell mill at Draper. This new building will house the yarn manufacturing equipment now in the Nantucket and Wearwell plants, and the space in the Wearwell plant thus released will be used for housing the looms that will be transferred from Nantucket. The consolidated plant at Draper will contain approximately 40,000 spindles and 870 looms.

This company is also erecting a 100-foot extension to the Spray Bleachery at Spray, and adjacent to this will be erected a four-story storage warehouse, 140x140 feet. Robert & Company, Inc., Atlanta, Ga., are the architects and engineers.

Georgia Kincaid Mills, plant No. 2, Griffin, Ga., has made plans for the construction of a new building and the complete renovation of the mill at a total cost of $200,000. It is said that when this plant is finished it will be one of the most modern in the South. The new addition will house 555 looms.

The Carolina Narrow Fabric Company, Winston-Salem, N. C., has completed the moving of its plant and equipment from the old plant building in Waughtown to its new home at the end of North Chestnut St. The equipment of the plant has been doubled approximately. Another expansion is being planned at a later date.

Zwicker Knitting Mills, Appleton, Wis., has made plans for a two-story addition to the plant; machinery that is now in the older buildings will be re-located and the buildings used as warehouses.

The Virginia Underwear Corporation's plant, Martinsville, Va., will have its present capacity almost doubled when the 4-story addition to the knitting mill has been completed and equipment installed. The equipment and building will cost over $30,000 it is understood.

The Viscose Company is planning to build a new process filament plant at Front Royal, Va. The company has exercised an option on 300 acres of land in that town.

The Herron Twine & Yarn Mills, Memphis, Tenn., has begun operations, occupying part of the old Florence Table Manufacturing Company's plant. Mop yarn, mop heads, and twine are made.

Sibley Manufacturing Company, Augusta, Ga., has completed installation of additional dry cans and a Sanforizing machine.

A new silk mill which will manufacture silk yarns for the hosiery mills is to be located at Cleveland, Tenn. The plant will cost about $100,000.

The Piedmont Manufacturing Company, Piedmont, S. C., has erected a new school building. J. E. Sirrine & Company, Greenville, S. C., prepared the plans.

Chatham Manufacturing Company, Winston-Salem, N. C., has contracted for the erection of a new office building, 79 x 65 feet, which will cost $30,000. The present office building will be used for recreation purposes.

Bonham (Tex.) Cotton Mills has placed J. E. Sirrine & Company, Greenville, S. C., engineers, in charge of work which will make improvements embracing the replacement of all the old warp spinning frames with new long draft warp and spinning frames, the revamping of the preparatory machinery, and the installation of a number of new cards and drawing frames.

The McPar Hosiery Mill, Marion, N. C., is constructing a 26x54-foot addition which will provide additional space for storing, packing, and grading.

It is understood that textile interests have purchased a 100-acre site at Socapatoy, 6 miles south of Goodwater, Ala., where a cotton mill and village will be built.

Buck Creek Cotton Mills, Siluria, Ala., in their program of modernization, have purchased 10,000 spindles of new H. & B. long draft spinning and equipment for changing over an additional 11,000 spindles which will make the mill completely equipped with long draft spinning. The mill is also installing 72 deliveries of new drawing and 10 additional cards.

A large hosiery manufacturing concern is seriously considering Dublin, Ga., as the site for a plant, according to reports.

The Spotlight Hosiery Mill, Inc., Rome, Ga., has been organized and operations began about the first of the year. The new plant represents an investment of $20,000.

Summit (Miss.) Textile Company, is erecting a one-story building to be used for a dyeing department. More than $30,000 will be expended for the building and modernization program underway, it is said.

Plans for the immediate erection of a modern textile mill in Greensboro, N. C., by W. J. Carter and associates, representing an investment of $750,000 and employing 600 workers, has been announced. The new building will be approximately 234x419 feet and will be located near the city limits.

The Carolina Cotton & Woolen Mills are planning to construct a new filter plant which will have a capacity of four million gallons every 24 hours and which is to be built for the purpose of supplying process water to the company's mills in Spray, N. C., and which will be connected with the present drinking-water system in Draper, N. C. The total cost of this water improvement will be approximately $150,000. J. E. Sirrine & Company, Greenville, S. C., are the engineers on the project. Completion is expected about the middle of the year.

It is understood that a large knitting mill will be established at Rockingham, N. C. Names of the promoters have not been disclosed.

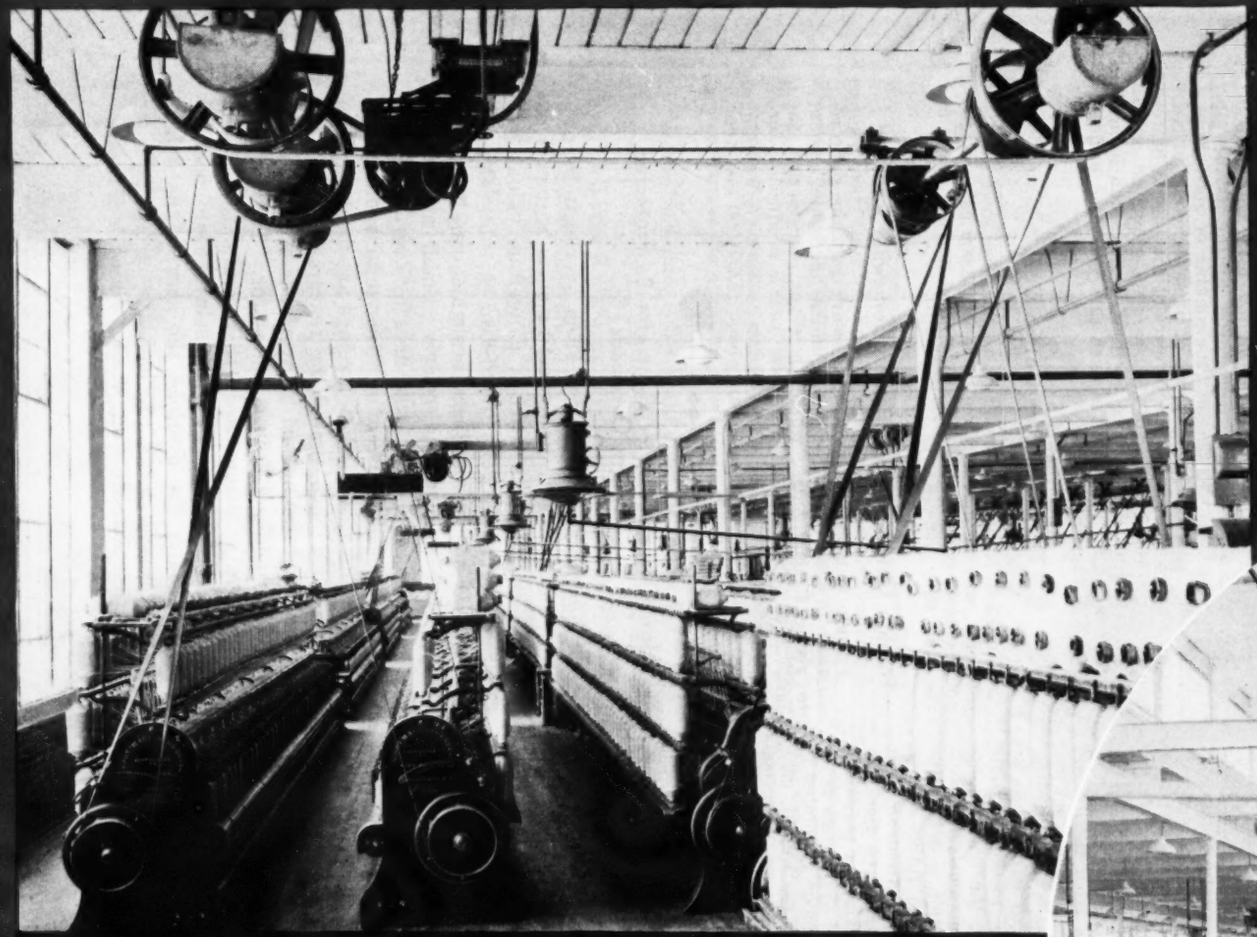
The Pauline Knitting Mill, Valdese, N. C., recently installed 20 new knitting machines.

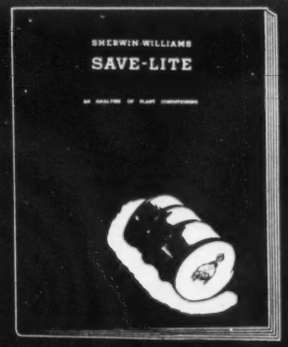
Hamblen Hosiery Mill, Morristown, Tenn., is building a 15-foot addition to its mill to house the dyeing and boarding department.

May Hosiery Mills, Nashville, Tenn., will install the machinery of the Amsterdam (N. Y.) Hosiery Mills which was purchased a short time ago.

Lynchburg (Va.) Hosiery Mills, will construct a new unit to the plant costing $25,000 which will be 140x50 feet, and two stories.

Crompton-Shenandoah Company, Waynesboro, Va., will make an addition to its plant costing about $35,000.





Every maintenance engineer, superintendent and foreman should have this plant conditioning text book. Write for your FREE copy.

MORE LIGHT . . . BETTER SIGHT . . . IN WHITE OAK MILLS

Thanks to the high light reflecting power of Sherwin-Williams Save-Lite, employees see better, work better in the Intermediates room of White Oak Mills. Greensboro, N. C. (unit of the Proximity Manufacturing Co.)

The spinning room, too, of White Oak Mills is flooded with light reflected by Save-Lite painted ceilings and walls.

SHERWIN-WILLIAMS SAVE-LITE

THE PLANT-CONDITIONING PAINT

THE SHERWIN-WILLIAMS COMPANY, CLEVELAND, OHIO AND ALL PRINCIPAL CITIES

SEE THE SHERWIN-WILLIAMS PAINTING ENGINEER

Arnall Mills, Sargent, Ga., are having the village houses re-painted and repaired.

The Trion (Ga.) Company has bought two Guillet overhauling systems to be used in their carding and spinning departments, the equipment being furnished by Dixie Spindle & Flyer Company, Inc., Charlotte, N. C.

The Kendall Company's Addison Plant, Edgefield, S. C., has installed a "No Drip" slasher exhaust system. The Textile Shop, Spartanburg, S. C., did the work.

Cherokee Spinning Company, Knoxville, Tenn., is planning to add a story to its spinning mill.

Standard Knitting Mills, Knoxville, Tenn., will add a fourth story to its mill.

COMMENT ON THE COTTON MARKET

New Orleans, December 18th, 1936

THERE was more activity in the cotton contract market during the past month, and as the period expanded, values assumed a rising trend under the stimulating influences of favorable trade accounts, large domestic consumption and the strength of spots.. A sustaining feature of the situation was the development in the December option, due to the stopping of notices and short covering. Of late, however, the market receded moderately because of some talk of the possibility of release of some government loan cotton after the new year, a less urgent demand for spots in the South and for gray goods in the North. Other developments that attracted attention and influenced a more conservative attitude on the part of some operators was the further falling off in cotton exports from the United States, due, perhaps, to competition of foreign growths, crops of which are reported to be large.

Late advices from an official is to the effect that no decision had been made as yet as to the method or date for release of loan cotton. Nevertheless, the trade is apparently uneasy over the matter, and is anxiously awaiting something more definite as to what disposition is to be made of the loan cotton, method, date, etc. The future course of the market, therefore, depends to a large extent on what the government may do as regards disposing of the loan cotton, and also as to the plans it may devise for preparing for the next United States cotton crop.

The government's estimate as of December 1, pointed to a crop of 12,407,000 bales of 500 pounds gross weight, comparing with 12,400,000 as of November 1, and 10,638,000 last year. Returns were about as generally expected. Acreage in cultivation July 1, was 30,932,000 acres, abandonment after July 1 was 2.8 per cent, leaving an acreage for harvest of 30,054,000 acres, versus 27,335,000 last year. The average yield per acre was given as 197.6 pounds against 186.3 pounds last year. Of the abandonment, Oklahoma lost 11 per cent, which was very large, and Texas 3.7 per cent, attributed mainly to the severe drought during the growing and fruiting periods. Of the average yield per acre, Oklahoma produced 60 pounds versus a normal of about 212 pounds. The yield per acre for Texas was 119 pounds versus a normal of about 192 pounds. Damaging droughts affected the Southwest the past three consecutive years.

CENSUS REPORT

United States—Bales—	This season	Last season
Consumption of lint, November	627,000	512,000
Consumption of lint, 4 months	2,477,000	1,924,000
Mill stocks, November 30	1,792,000	1,349,000
Stocks in public storage and warehouses, November 30th	8,418,000	8,629,000
Stocks in mills, public storage and warehouses, November 30th	10,210,000	9,978,000
Stocks in mills, public storage and warehouses, October 31st	9,431,000	9,560,000
Active spindles during November	23,806,000	23,194,000
Active spindles during October	23,638,000	23,128,000
Consumption of lint in Cotton Growing States, November	529,000	431,000
In New England States	78,000	67,000
In All Other States	20,000	14,000
Consumption of lint in Cotton Growing States, 4 months	2,078,000	1,613,000
In New England States	321,000	254,000
In All Other States	78,000	57,000

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER

Year—	1936	1935	1934
Exports of yarn, pounds	12,000,000	11,000,000	13,000,000
Exports of cloth, yards	154,000,000	158,000,000	172,000,000

AMERICAN COTTON

Aug. 1 to Dec. 18— Bales—	This season	Last season
Brought into sight (marketed)	10,171,000	9,352,000
Exports from the United States, including Canada	2,805,000	3,235,000
Spinners' takings, world	6,315,000	5,536,000
Stock at all U. S. ports, Dec. 18th	2,905,000	2,829,000

WORLD'S VISIBLE SUPPLY OF COTTON, DEC. 18

Bales—	This year	Last year
American	7,272,000	7,320,000
Other kinds	1,896,000	1,402,000
All kinds	9,168,000	8,722,000

General Trade Outlook

It is possible there may be a slowing down of commercial activity with the opening of the new year, following the activity of the past six months, especially in the cotton textile trade. Such a pause, however, would likely be only temporary, as there is every indication for unusual activity in the agricultural regions, particularly in the West and South where large acreages are apt to be cultivated to produce larger food and feed crops, of which there is now a comparative shortage, and for the making of a good cotton crop. Already general business is good, and when the agricultural regions are active, and they will probably be very much so next spring, the industrial centers of the country can rest assured of receiving orders sufficient to keep the wheels of mill and factory at high speed. As if to assure such a realization, prices of farm products, especially grain and provisions, are comparatively high, which, with a good acreage, assure remunerative returns to the farmer in event of good crop weather and the making of good crops, which would probably be disposed of at satisfactory prices. Despite the great drought, the farmers of the United States had crops valued at $6,084,932,000 as compared with $5,418,755,000 in 1935. Prices averaged higher than in any year since 1929. Favorable as was this year, the outlook for 1937 is even brighter.

The East Indian Cotton Crop

The East Indian cotton crop, on acreage sown to December 1, was estimated officially at $5,478,000 bales of 400 pounds each, compared with 5,352,000 on acreage sown to the same date last year.

Foreign Cotton Crop Estimates Somewhat Reduced

Private sources have felt it necessary to make some reductions in early estimates, which, in the aggregate, amount to about 450,000 bales, which, however, considering the large indicated increase over last year's production, are not significant since the total foreign production was estimated at 17,550,000 bales versus about 15,750,000 last year.

How Can a Motor or Generator Be Protected from Overloads?

Machines can be protected from overloads by providing some means of disconnecting them automatically when the currents reach a dangerous value, generally about 125 per cent of full-load current. Generators usually have circuit breakers which can be opened manually or by overload relays. Small motors are protected by fuses, and large ones by overload relays on the starting devices, or by fuses and circuit breakers at the line switch. When relays are used they are often provided with time-delay features so that the circuits will not be opened by overloads of short duration that would not injure the motor. The inverse-time feature is often used; this means that for a slight overload there is a long delay before opening and the greater the overload the shorter the delay; for an extremely large overload the circuit breaker opens instantaneously.—*E. M. C. Fairbanks-Morse.*

and of Low Maintenance Cost

If you know the comparative ease with which three roller regular draft spinning equipment is cleaned and repaired, then you have a fairly good idea as to the ease with which the H & B Four Roller Long Draft system is cleaned and repaired; for the only fundamental difference between the two systems is the addition of a fourth roller.

Veteran mill men know that, other advantages being approximately equal, the low maintenance cost resulting from H & B Four Roller simplicity is sufficient in itself to win this system preference. Furthermore, the performance record of this system during the last two years indicates that other advantages MUST be approximately equal. Two examples of this record are as follows:—

A well known southern mill installed a large number of our Model B spinning frames equipped with Four Roller Long Draft and after extensive mill tests reported a 25% increase in production and a 20% increase in breaking strength.

A well known New England mill made comparative tests for two years (on a comprehensive manufacturing scale) of the three major types of long draft spinning, with respect to strength and quality of yarn, maintenance cost of machinery and return on investment. At the end of the period they reported that, all things considered, they preferred H & B Long Draft.

Install this system in YOUR mill and thus maintain or improve quality and lower costs.

H & B AMERICAN MACHINE COMPANY
Cotton Preparatory and Spinning Machinery
PAWTUCKET, RHODE ISLAND
BOSTON OFFICE, 161 Devonshire Street
ATLANTA OFFICE,
815 Citizens and Southern National Bank Bldg.
CHARLOTTE OFFICE, 1201-3 Johnston Bldg.

H&B

FOUR ROLLER LONG DRAFT SYSTEM

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

Catalog on Power Transmission Equipment

Boston Gear Works, Inc., Terminal Commerce Building, 401 N. Broad St., Philadelphia, Pa., has published a catalog to fit the pocket descriptive of its gears, speed reducers, ratiomotors, chain drives, ball bearings, etc. The catalog is illustrated and bears tables showing the qualifications of the supplies and the data necessary to order from the company.

Broadside from Brown

The Brown Instrument Company, a division of Minneapolis-Honeywell Regulator Company, Philadelphia, Pa., has made available a new broadside entitled *Here's the Answer to Your Temperature Problem*, featuring Brown thermometer controllers. This new piece of literature graphically describes the accuracy, simplicity and ruggedness of Brown controllers and illustrates the ease with which Brown Air-o-Line thermometer controllers may be tuned to specific process requirements and in addition gives in detail the other features and the ranges of both air operated and electric types of controllers. Also described are the Con-Tac-Tor mercury switches.

Bulletin for Commercial Air Conditioning

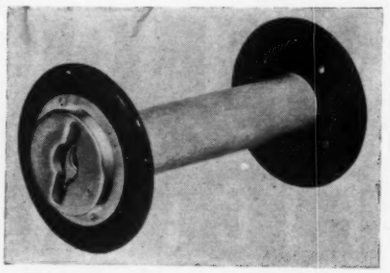
Carrier Corporation, 850 Frelinghuysen Ave., Newark, N. J., has released a 12-page bulletin entitled *Modernize—Merchandise* describing various types of units for ceiling, wall, and floor mounting air-conditioning. In addition, the use of compressors and evaporative condensers is illustrated. A feature of the bulletin is the diagrammatic visualization of duct work and cooling coil heaters.

Leaflet on Elek-trol-ik

Oneida Electric Manufacturing Company, Green Bay, Wis., has distributed a leaflet descriptive of its Elec-trol-ik boiler scale remover and eliminator. The Oneida products are guaranteed against defective material and workmanship. It is said that the investment in this boiler scale remover and eliminator is quickly repaid in fuel saving alone and that the first cost is the last cost. Elek-trol-ik is easy to install and its life is about one year, depending on the chemical composition of the water used in the boiler.

Patent on Steaming Bobbin

Lestershire Spool and Manufacturing Company, Johnson City, N. Y., has been granted a patent on the construction of a new steaming bobbin. Two features of this bobbin are that the Dardelet threadlock is used to secure the heads tightly to the barrel. It also permits renewal of any part at a minimum cost. The heads on this bobbin are of special 18-8 stainless steel which



New Steaming Bobbin

is lighter gauge than used with 3-rivet construction, but because of the rolled edge and the Dardelet lock, the head is said to meet every test for strength in use. A slight spring capacity of the head permits expansion and contraction when the bobbin is filled and steamed—avoiding loose yarn after the steaming.

Interesting Literature by Armstrong Machine Works

Armstrong Machine Works, 820 Maple St., Three Rivers, Mich., show some interesting trapshots in its organ, *The Armstrong Trap Magazine*, and also show in several well-written articles that modernization pays a dividend. A reference table is given of return pipe sizes.

Industrial Wiring Survey

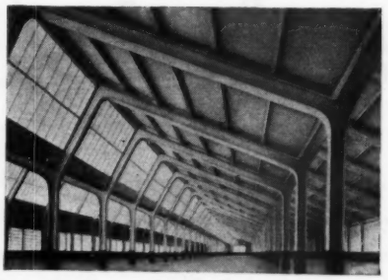
Anaconda Wire and Cable Company, 25 Broadway, New York City, has made available an industrial wiring survey form designed to facilitate investigation of the condition of the electrical equipment and wiring in industrial plants from the standpoint of the ability to carry load, surplus or spare capacity, system defects, safety, deterioration, and obsolescence. It gives the logical procedure for making such a survey, provides convenient space for recording findings, and gives recommendations for plans or plot sketches of the existing layout. It is believed that such a study, if faithfully followed through, will disclose the weaknesses, if any, in the electrical system, and become a permanent record for determining what parts of the system may be extended under pressing conditions.

Report of Mississippi Valley Conference on Farm Power

A report in booklet form has been prepared by the Doane Agricultural Service, St. Louis, Mo., of the Mississippi Valley conference on farm power which was held at Greenville, Miss., October 28, 1936. The booklet contains illustrations of the field trials and demonstrations held and gives facts and figures ascertained at the conference.

New Design for Single-Story Industrial Buildings

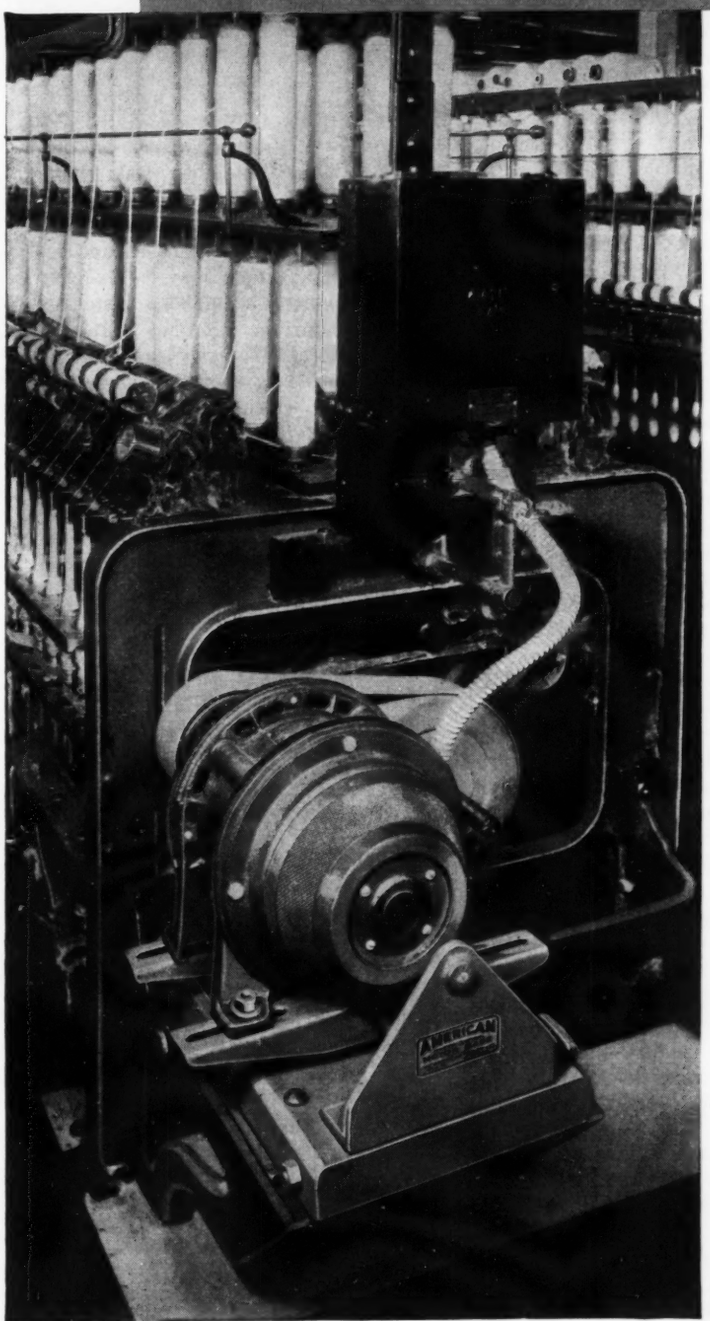
The Austin Company, Cleveland, O., has presented a new design for single story industrial buildings, providing broader factory aisles, unobstructed head room to full ceiling height, and maximum uniform daylight throughout, brought about through the use of welded rigid frame construction.



New design for single-story industrial buildings providing broader factory aisles . . .

Entirely stripped of cross members and trusses which cast spider web shadows across most factory areas today, the new type of building has a continuous rigid saw-tooth frame formed by the welding of rolled beam sections which permit economical construction of aisles up to 50 feet in width. It is particularly adaptable to requirements of the textile industry where installation of air-conditioning equipment is a factor of increasing importance. Extensive research carried on at The Austin Company's fabricating shops in Cleveland preceded announcement of the revolutionary new industrial building type, which, according to an authority, adapts the natural tree form of structural design to industrial purposes. European engineers have applied similar technique in their factory construction, due to its more efficient utilization of steel.

Belt Tension Should *NEVER* Be Constant



Control it—AUTOMATICALLY *to meet load requirements and you've found the Key to maintenance economies*

If mill men could control formulas, yarn weights and textures, weaves, etc., as positively and easily as they CAN NOW CONTROL belt tension throughout their plants, textile experts would heave a great sigh of relief. For the age-old problems of belt tension control have been definitely and finally "licked". Operators all know that starting and other peak loads require high belt tension on any drive. But constant tension that will handle these peaks is too high for average conditions—and *ruinous to belts and bearings.*

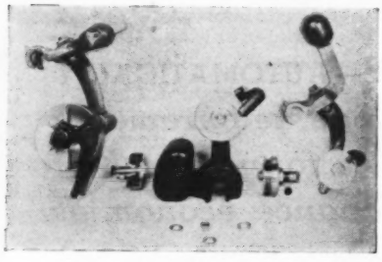
The American Tension Control Motor Base *automatically matches belt tension to load.* No other type of short center drive can match it in efficiency and outright economy. Appreciable savings are accomplished through increased belt and bearing life, reduced power consumption and longer intervals between replacement shut-downs wherever this base is installed. Try an American Tension Control Motor Base in your mill. We will gladly send one on approval so that you can demonstrate its matchless efficiency and savings.

THE AMERICAN PULLEY COMPANY
4200 WISSAHICKON AVENUE
PHILADELPHIA, PA.

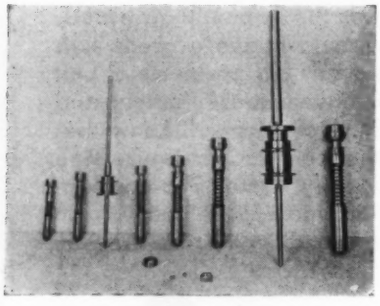
AMERICAN
Tension Control
MOTOR BASE

Over 650,000 SKF Tension Pulleys in Use

SKF Industries, Inc., Philadelphia, Pa., have announced that more than 650,000 of their tension pulleys are in use over the world today, 180,000 being installed since January, 1936. Many of these are used in southern textile



Tension pulleys



Roller bearing spindles

mills where it is claimed they are eliminating 99 per cent of the tape-tension troubles. Lubrication of these pulleys is said to be required only once every 10,000 running hours. The SKF roller bearing spindles have been installed and have proven satisfactory and are said to be universally accepted by mills as reducing the power per pound, and reducing the maintenance cost.

Discharge Printing Compound

Revertex Corporation of America, 80 Broad St., New York City, has developed a compound which is said to be well adapted to simplifying the use of latex in discharge printing. The compound is known as K-57-C and is sold ready for use; it is said to have good keeping qualities.

Power Burling Table

Birch Brothers, Inc., Somerville, Mass., are offering to the woolen and worsted mills an improved power burling table which is said to allow the speed of the work to be increased and also for the work to be done more thoroughly. The machine is fitted with an inspection board having a glass panel lighted from the back and is fitted with a forward and reverse drive controlled by the operator's knee. One important feature of the machine is that the cloth travels towards the operator instead of from her. The machine is made in all widths, but normal width is 84 inches.

"Sharing Profits with the Employees"

Metropolitan Life Insurance Company, New York City, recently distributed a booklet entitled Sharing Profits with the Employees, which goes into the history of profit sharing.

A hundred years ago a small employer of labor in France conceived the idea of distributing a part of his earnings to those who worked for him to give them an interest in the success of his business. Since that time employee profit sharing plans of many varieties have spread throughout the business world. The idea has had a checkered career. Interest in it has died down occasionally only to be revived again. Some companies use it with success today. Many companies have tried the plan only to discontinue it after a period.

A current wave of interest among business executives in employee profit sharing is reflected in a survey by the Policyholders Service Bureau of the Metropolitan Life Insurance Company to determine recent trends and present practices as revealed by the experiences of representative employers.

There is little agreement, according to the survey report, as to what really constitutes profit sharing. Some executives use the term to apply to various types of bonuses or to the purchase of company stock by employees. There is an increasing tendency, however, to define profit sharing as a voluntary agreement in which the employee receives a share, fixed beforehand, in the profits of the business.

As viewed by most authorities the usual purpose of employee profit sharing plans is to create a mutuality of interest between capital and labor and to give employees an incentive to help in maintaining or increasing the company's profits. The survey revealed that successful use of the practice in any specific case appears to depend upon conditions peculiar to the individual company. The amount and stability of a company's profits are found to be factors of prime importance.

In commenting on the correct approach to profit sharing the report says, "It is generally recognized that profit sharing is not a panacea for industrial ills; it is rather a part of an industrial relations program . . . Similarly, it is maintained that the profit sharing program should be fitted into and not conflict with a company's program of employee security."

Sharing Profits with Employees, the title of the insurance company's report, describes the different types of profit sharing plans, outlines their historical background, and discusses their purposes and theories. It then takes up the details of organizing and administering a program covering such subjects as eligibility for participation, the amount of profits to be shared, the basis of distribution, the form and time of distribution, etc. Case histories of several typical plans in use today are given in detail.

Leaflets by Du Pont

E. I. Du Pont de Nemours & Company, Inc., Wilmington, Del., have prepared and distributed a number of leaflets describing their colors which have been placed on the market recently. The leaflets may be handily kept in a notebook and filed systematically for further reference. In the upper right hand of the leaflet is the sign of the color, showing whether it is acid, vat, sulfur, or what and in the center of the page is the name of the dye. Some of the colors as given in the leaflets are, Pontacyl Scarlet 2G, Pontacyl Fast Violet 10B, Du Pont Anthraquinone Blue SEN, Pontacyl Blue Black SX, and Sulfogene Green M Concentrated. The properties of all colors and dyeing instructions are also given.

Bulletin by Esterline-Angus

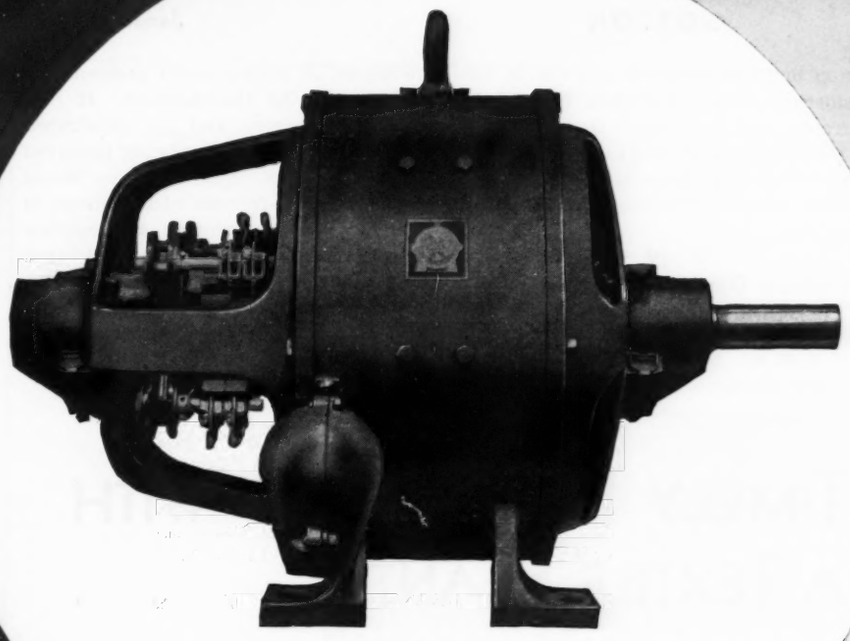
The Esterline-Angus Company, Indianapolis, Ind., has distributed bulletin No. 1036 which carries an article entitled "Engineering a Steel and Wire Plant with Graphic Instruments". This is an interesting article and is suitably illustrated with photographs of installations and charts.

Bulletin by Manganese Steel

Manganese Steel Forge Company, Richmond Street and Castor Avenue, Philadelphia, Pa., has published a bulletin, No. R-107, which is descriptive of true Manganese steel and which gives the qualities of Manganese products. An alphabetical list of the applications of these products is given. It also explains that Rolman rods are available in standard or special lengths and diameters.

Folder by Sight Light Corp.

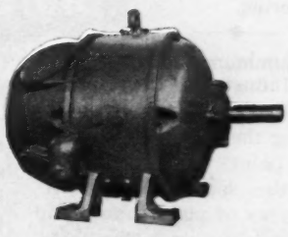
The Sight Light Corporation, P. O. Box 57, Essex, Conn., has distributed an interesting folder on "Plus" lighting, which is the name of the newest development in the field of artificial light. Some excellent lamps have been designed and have been approved by the Illuminating Engineering Society. The secret of this new lamp is in the head, which is a complete indirect



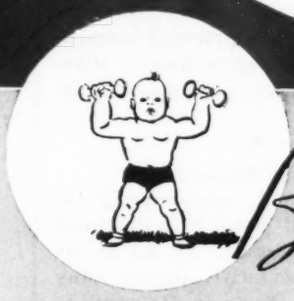
Reliance Type T Heavy Duty Motor
for Direct Current
Four Poles · Sleeve Bearings

Ball-bearing motor with solid covers over top openings, screen covers over lower portion.

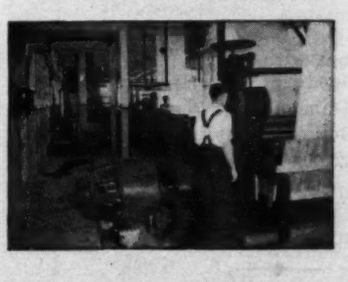
Reliance Vertical Type T Motor equipped with drip-proof covers.



Enclosed water-tight motor with ball-bearings. Hand-holes permit ready access to brush rigging and commutator.



Born and raised TO A HARD LIFE . .



Reliance Range Drives allow a straight-run layout which keeps cloth moving faster with more uniform results.

The 3-unit Reliance Range Drive on this Van Vlaanderen Print Washer maintains automatically the right tension on the cloth in all sections.

It was in 1915 that the Reliance Type T Heavy-duty Motor emerged from the composite experience of some 35 industrial engineers — husky and well born. The past two decades have seen it grow steadily more and more rugged, its development still attended by practical experts. Reliance Type T Motors are widely known for their significant endurance, for their steady operation and minimum upkeep, under the necessarily severe conditions of a hard life . . . Critical buyers have approved the Reliance Type T Motor by a repeat-purchase record we are proud to show . . . The principal details will be found in Bulletin 120.

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 Ivanhoe Road Cleveland, Ohio
Branches: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Detroit, New York, Philadelphia, Pittsburgh. Representatives in other principal cities

RELIANCE A-C D-C MOTORS

lighting system in itself, and which is a part of each lamp. It is devised for application to a myriad of conditions and is said to be an economical solution to the problem of putting proper light exactly where it is needed.

Cog Belt Catalog

The Dayton Rubber Manufacturing Company, Dayton, O., has announced a new combined catalog on cog belt and v-flat drives which supersedes its catalogs No. 105, No. 110, and No. 160. The new catalog, No. 180, in one compact volume, gives complete data and prices on cog-belt drives, cog-belt drives with day-steel pulleys and v-flat drives. It lists for quick and easy selection the proper combinations of standard belts and standard pulleys to meet any drive condition, telling at a glance the proper drive to use, without any calculation or engineering.

Booklet by Aluminum Industries

Aluminum Industries, Inc., Cincinnati, O., has published an attractive booklet showing the unique advantages of aluminum paint which have been extended to the specialized requirements of all types of maintenance and general product painting. The interesting 45-page booklet includes a report of this outstanding development in aluminum paint and an outline of the requirements of different forms of maintenance painting. Included is a chart which shows the types and physical properties of Permite ready-mixed aluminum paint for different applications.

Bulletin by Smith on Air Heaters

James Campbell Smith, Inc., 16374 Euclid Ave., Cleveland, O., has presented a bulletin describing the automatic indirect coal-fired industrial air heater for use in connection with ovens or for space heating. The unit is adapted to both summer and winter air-conditioning as it can be used to warm, filter, humidify, or de-humidify, and refrigerate the air. A longitudinal section of the heater is shown and brings to light the details of construction and operation. The back page of bulletin is profusely illustrated with representative Smith installations.

Steam Turbine Bulletin

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has published another attractive steam turbine bulletin, No. 1181, covering its standard line of high-pressure, non-condensing steam turbine units of the 3-valve reaction type suitable for top turbine service, or furnishing steam for high-pressure process work. The construction of these turbines is given in considerable detail, including both photographs and drawings. One section of the bulletin is devoted to the detail construction of alternating current generators suitable for this type of steam turbine.

Brochure Describes Solution of Metal Problems

The International Nickel Company, 67 Wall St., New York City, has issued a new brochure describing the solution to scores of actual metal problems as encountered by the engineer. It contains 48 pages, and is illustrated throughout, the booklet being prepared primarily as a guide book to Monel and other non-ferrous nickel alloys in the fields of engineering applications. It also covers the corrosion resistance and other properties of these metals. Besides going into the details of standard Monel, the booklet describes some of the newer forms of this alloy, including "K" Monel and "S" Monel.

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

"Swing-Time Colors"

An important feature of the regular edition of the 1937 spring silk card, recently issued to members of the Textile Color Card Association, is the striking new format used for portraying the highlighted group of "Swing-time Colors". These sprightly hues, including pastel and brilliant tones, are shown on a gold ground, stressing their glamorous appeal.

Developments in Rayon Feature of Du Pont Exhibit

E. I. Du Pont de Nemours & Company, Inc., is showing some of the outstanding developments in rayon yarns and rayon fabrics at the Brooklyn Museum Rayon Show which began December 11 and will continue to January 25, 1937. This exhibit of industrial art covers various phases of the rayon and synthetic yarn industries, including the manufacture of the yarn, its developments, its rise as an industrial factor, and fabric achievements. The yarn types show, in which Du Pont has pioneered, include their thick and thin yarn, spun rayon, staple fiber, slit cellulose film, and examples of filament size. The latter are shown graphically by means of a chart of black ground across which are drawn the various yarns. The fabric display includes a cascade of fabrics in the main entrance hall of the museum, chosen on the basis of beauty and general fabric interest.

Dr. Gansel Joins Onyx Staff

To extend further its policy of co-operation and service to the processing trade, the Onyx Oil & Chemical Company, Jersey City, N. J., announced that Dr. Eugene Gansel has joined its staff as field consultant and demonstrator. Dr. Gansel is well-known throughout the trade for his work as "trouble-shooter" over a period 9 years with the United Piece Dye Works, Lodi, N. J., and for his successes in process development with that company. He will render practical mill assistance to dyers and finishers on any problems concerning dyeing, bleaching, boiling-off silks, scouring synthetics, printing, and finishing.

Warren Haycook Passes

Warren Haycook, who recently became associated with Sipp-Eastwood Corporation, Paterson, N. J., as its southern representative, passed away suddenly at his home in Haledon, N. J., Saturday, November 28.

Goodwin Goes with SKF

Henry P. Goodwin, formerly connected with the Dunean Mills, and a graduate in textiles of Clemson College in the year 1932, has become a member of the staff of SKF Industries, Inc., Philadelphia, Pa. Mr. Goodwin will work out of the Atlanta office.

General Dyestuff Occupies New Building

Every departmental activity of the General Dyestuff Corporation is now co-ordinated under one roof in a newly-erected 9-story building located at 435 Hudson St., New York City. With the exception of half a floor which is tenanted by the General Aniline Works, for which GDC is sole selling agent, the company occupies the entire building. This new structure is said to be the largest of its type erected in the city within 5 years. It is so constructed as to permit the erection of 3 additional stories should increased business warrant further expansion.

To Prevent Lint Troubles
buy
K-A ELECTRICAL WARP STOP

The discussion on page 89 of the November issue of *COTTON* demonstrates one thing:

LINT ACCUMULATION IS STILL A WARP STOP PROBLEM; AS IT HAS BEEN FOR OVER 30 YEARS

1905. Two cotton mills used a competing electrical warp stop. One tried K-A:—eventually 100%. Asked a representative of the other mill:—"How do you avoid lint troubles?" Said the convert:—"By installing K-A."

1910. A new electrical warp stop had appeared with "outstanding improvements". Demonstration showed that it had to be cleaned of lint repeatedly in weaving a single worsted warp. K-A required no cleaning. Result 100% K-A.

1912. In a well-known worsted mill, mechanical motions (then up-to-date) were tried against K-A. On the mechanicals, accumulated lint interfered with the drop wire action. No such interference occurred on K-A. The maker of the mechanical motions suggested a half remedy. The mill management adopted the only effective remedy:—100% K-A.

1934. At a leading woolen mill where trouble was suffered from "flock" (the woolen mill equivalent for "lint") four different types of warp stop, including K-A, were used—three of them the "last word". Two were electricals and two were mechanicals. K-A was the only one of the four that functioned satisfactorily. The mill is now 100% K-A.

1936. (See above.)

Why invite history to repeat itself in your own mill to your disadvantage?

WELL-KNOWN SOUTHERN MILLS BUY THEIR NEW LOOMS WITHOUT WARP STOPS AND K-A EQUIP THEM: WHY NOT YOU?

RHODE ISLAND WARP STOP EQUIPMENT CO., PAWTUCKET, R. I.

William D. Whittaker
P. O. Box 2063,
Atlanta, Georgia.

Southern Combed Yarn Spinners' Association Headquarters Moved

Headquarter offices of the Southern Combed Yarn Spinners' Association were moved to the top floor of the Bank of Commerce Building, Gastonia, N. C., November 30. They formerly were in the Realty Building. The new location provides an attractive location, and one favorable feature of the new home is that it adjoins the offices of Thomson & McKinnon, brokers. The telephone number continues to be 1172.

Express Traffic Made 13 Per Cent Gain in October

According to a recent survey made by the Railway Express Agency, express traffic in the United States showed an increase of 13.08 per cent during October. All of the 16 operating departments of the express company showed gains of from 9.8 per cent to 18.7 per cent, the comparisons being based on the total number of shipments handled in October, 1935. Operating divisions covering Mississippi, Washington, and Alabama reported better than 20 per cent increases during this month. Figures for traffic handled both by rail express and air express were included in the survey.

Holtzman Joins Rawlplug

W. F. Holtzman has been appointed manager of the Rawlplug Washington Company, 50 Florida Ave., N. E., Washington, D. C. This company manufactures a complete line of patented anchoring devices, masonry drills, etc.

Thermoid Enlarges Mechanical Rubber Goods Division

The Thermoid Rubber Company, Trenton, N. J., has announced the enlargement of its mechanical rubber goods division to offer more thorough personalized service to its hundreds of distributors. This move has been accomplished through the edition of three new district supervisors; George W. Skirm, Indiana territory, H. C. Griffen, New York territory, and S. S. Tower, New England territory.

Cotton-Textile Institute Directors Named

B. F. Hagood, president and treasurer of Glenwood Cotton Mills, Easley, S. C., and M. L. Gates, secretary-treasurer, Arkwright Mills, Spartanburg, S. C., have been elected to the board of directors of the Cotton-Textile Institute. Mr. Hagood succeeds A. F. McKissick, president, Alice Manufacturing Company, Easley, S. C., and will serve until October, 1939. Mr. Gates succeeds the late James P. Gossett and will serve until October, 1937.

Belt "Don'ts"

The following rules are given in a booklet entitled *How to Belt Your Drives for More Profit* published by E. F. Houghton & Company.

Don't cut the end of a belt without a steel square; a crooked joint may mean a torn belt.

Don't guess at the lace holes. Each hole carries a proportion of the total load, and should be in a perfect alignment with the other holes in the layout.

Don't run a belt that starts crooked. Take it off and check the joint, laced or endless, before damage is done to the whole belt; a crooked start may stretch one edge beyond repair.

Don't put a belt on too tight. Belts and bearings both have their limits; tension beyond what is needed to grip the pulleys is dangerous and costly.

Don't allow belts to be tightened by inexperienced help; have your belt man supervise this point. This can be the cause of much loss, or the means of much saving.

Don't allow shifters or other equipment to rub belt edges; leather belts grip any surface, and often elongate on one edge from serious rubbing.

Don't allow belts to operate on pulleys out of line; belt, pulleys and shafts should be in perfect alignment to give good service.

Don't hold a belt on with a bar or brace; when it wants to come off, there must be a reason. Crooked belt, pulleys or shaft out of line, or too much load; each has a separate remedy.

Don't allow mineral oil to fall on a belt. Oil causes slippage, heating, cracking; the belt manufacturer cannot help this sort of slippage. Degrease such belts with gasoline and re-oil them with neatsfoot oil before damage is done.

Don't put undersized belts in oversize service; belt stretch, wear and service are all proportional. Use belts of ample thickness and width, give them proper attention, and take the profit built into high-grade belting by reputable manufacturers.

Flynn Liquidating Agent

George D. Flynn, Jr., Fall River, Mass., has been appointed liquidating agent for S. Slater & Sons, Inc., Webster, Mass. The plant is equipped with 70,000 spindles and 1200 looms; the stock in process will be run out completely about the second week in December. The Slater Company also runs a large plant in South Carolina, which will continue the work of the Webster establishment.

Booklet on Stokers

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill., has released a new 28-page booklet on the company's automatic coal stokers for industrial and commercial use in capacities up to 300 hp. The booklet is copiously illustrated and gives many pertinent data. Among the major headings are scientific combustion cycle, burning heads "tailored" to fit the coal available, and stoker hoppers.

Additional Personals

GEORGE A. UELAUB, who has been connected with Louis Hirsch Textile Machines, Inc. for the past 6 years, has been appointed executive secretary of the Throwsters Research Institute, succeeding H. E. BISHOP, resigned.

H. B. JENNINGS, Lumberton, N. C., has been elected president of Ada McLean Cotton Mills, a new corporation which will take over the old National Cotton Mills of Lumberton.

C. C. WHITE, formerly office manager of the Startex Mills, Tucapau, S. C., has been elected treasurer of the company.

E. V. WILSON, who has been assistant to the superintendent of Pelzer (S. C.) Manufacturing Company, has been put in charge of the office of the Greensboro (N. C.) Loom Reed Company.

H. L. PRUITT, Pelzer, S. C., formerly superintendent of the Adams-Swirles Mills, Macon, Ga., has been made department superintendent of weaving at the Riverside and Dan River Cotton Mills, Danville, Va.

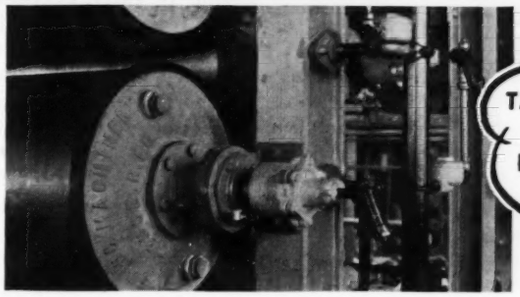
S. A. ROANE, who has been with Barnes Textile Associates for the last 8 years, has been made southern representative for J. S. Fallow & Co., New Bedford, Mass., sales agents for a number of textile equipment manufacturers.

C. J. HOOK, superintendent Piedmont Mills, Gastonia, N. C., has been made general superintendent of the Piedmont Mills and the Algodon Mills, Bessemer City, N. C.

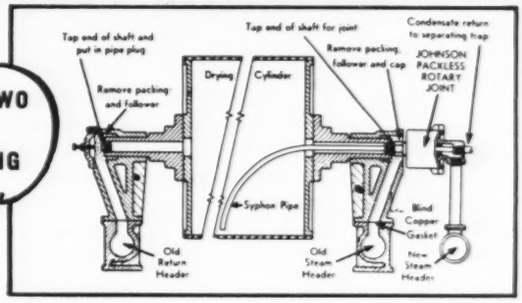
Obituary

HOWARD JOHN STIEB, 46, vice-president of John P. Maguire & Company, Inc., factors, passed away at his home December 13.

WRITE: "Freedom from stuffing box trouble" into your 1937 records!



TAKE THESE TWO TIME AND DOLLAR-SAVING STEPS:



1. Install the Johnson packless, self-oiling, self-adjusting Rotary Joint that has revolutionized dry-can performance in dozens of mills. It requires no packing of any kind. Pressure is retained by the self-oiling, carbon-graphite seal ring. Since the seal increases with the pressure, the joint is self-adjusting. It operates without attention and it out-lasts all other types many times over.

2. Use this method of installation. With the Johnson Rotary Joint installed as diagrammed above, by-passes, with the possibility of inter-action are eliminated, dry-cans are ready to operate five or ten minutes after steam is turned on, higher temperatures can be maintained, power and steam is saved, and production is increased. Ask for bulletin covering the joint and its application in detail.

THE JOHNSON CORPORATION

WRITE for NEW BULLETIN

815 Wood Street, Three Rivers, Mich.

Johnson Rotary PRESSURE JOINT

These Textile Machinery Manufacturers either use Johnson Joints as standard equipment or will furnish them on specification.

Van Vlaanderen Machine Co.
Cocker Machine & Fdry. Co.
Frank P. Davis Co.
B. F. Perkins & Sons Co.
H. W. Butterworth & Sons Co.
Saco Lowell Shops
John Waldron Corporation
Morrisson Machine Co.
The Textile Finishing Machinery Company

CLOTH ROLLER CLEARER SLASHER

Palmer - Sanforizing - Lapping - Stamping - and Other Mechanical Fabrics

HONEST quality and continued uniformity have made PHILADELPHIA Felt the standard for Textile use. There's a great difference in felt, and to be sure of getting just the right cushion, a thick, strong nap that won't pull out, as well as the correct porosity, be sure you get genuine PHILADELPHIA Felt.

If you have a felt problem of any nature, let us help you solve it. Write us today.

PHILADELPHIA FELT COMPANY
FRANKFORD, PHILADELPHIA, PA.

PERSONAL NOTES
about Men You Know

JAMES E. MACDOUGALL has been made southern manager for Smith Drum Company, with offices at 601 Commercial Bank Building, Charlotte, N. C., succeeding ROBERT D. HOWERTON who has joined the sales organization of Calco Chemical Company, Bound Brook, N. J.; Mr. Howerton will travel the Carolinas.

Mr. MacDougall

Mr. Howerton

EMERSON B. TIFFT, formerly of the Draper Corporation's plant, Beebe River, N. H., has been made assistant superintendent of the Draper Corporation, Hopedale, Mass., and he is succeeded at Beebe River by JACK LOCKE, formerly with the finishing mill of Draper Corporation, who is in turn succeeded by LEON PARKER.

BURRIS B. SNOW has been promoted to superintendent of the Bibb Manufacturing Company, plant No. 2, Macon, Ga., succeeding M. R. GARDNER, resigned. W. C. LANE succeeds Mr. Snow at the Osprey Mill of the Bibb company, Porterdale, Ga. P. S. LEACH, who has been in charge of the efficiency department at Osprey Mill, has been made shift foreman succeeding Mr. Lane.

CLAUDE F. PIPES has resigned his position as assistant agent of Postex Cotton Mills, Post City, Tex., to accept the position as superintendent of Houston (Tex.) Textile Company.

WILLIAM D. CARTER, formerly connected with the Carolina Cotton & Woolen Mills, Spray, N. C., has been made general superintendent of the Susquehanna Silk Mills, Sunbury, Pa., succeeding R. H. MORE who has become assistant to the president of the Oscar Heineman Corporation, Chicago, Ill.

GEORGE B. WEPPLER, formerly a member of the staff of Marshall Field & Company, and of the Pacific Mills, Lyman, S. C., has joined the sales staff of Seneca Textile Corporation.

LAURIE C. DICKSON, formerly vice-president and treasurer of the Stevens Yarn Company, Inc., New York and Charlotte, has become associated with James Talcott, Inc., New York, factors. He will represent the company's interests in the South making his headquarters at 147 Brevard Court, Charlotte.

V. H. CARR is overseer of spinning at the Borden Manufacturing Company, Goldsboro, N. C., and is not connected with Durham Hosiery Mills, Carrboro, N. C., as stated in the report of the Durham meeting on page 67 of the November issue of COTTON.

H. D. DICKSON, formerly night overseer of spinning, Bath (S. C.) Mills, Inc., has been made general overseer of spinning at the Oconee Textiles, Inc., Westminster, S. C.

J. ALLEN SWAINBANK, formerly superintendent of the Otis Company, Ware, Mass., has been made superintendent of the Nashawena Mill, New Bedford, Mass., which has resumed operations after being closed for a year.

C. G. WHITE, superintendent of the Phenix Mills, Kings Mountain, N. C., has been made superintendent of the Dillings Mills also, which have been taken over by the Phenix company.

JAMES F. BRUNER, formerly cloth room overseer, Oconee Textiles, Inc., Westminster, S. C., has been made plant superintendent and assistant to J. M. BRUNER treasurer of the company.

GEORGE A. SLOAN, former president of the Cotton-Textile Institute, has resigned as president of the Sloan company. His plans for the future have not been announced.

JOE T. FRY has been promoted from overseer of weaving at the Enterprise Manufacturing Company, Augusta, Ga., to the position of superintendent of the Sibley Manufacturing Company, Augusta, succeeding C. J. ASHMORE, who resigned.

Obituary

C. RANDOLPH BENNETT, treasurer of Frank P. Bennett Company, Boston, Mass., publishers of the *American Wool and Cotton Reporter*, passed away at a hotel in Boston in early December following injuries received in an automobile accident in which his skull was fractured when the automobile skidded. Mr. Bennett was associated throughout his lifetime with the textile industry and was considered an authority on textile conditions. He was widely acquainted throughout the southern textile industry and made frequent visits among the mills in this section. He is survived by two brothers, E. HOWARD BENNETT and FRANK P. BENNETT, JR., his wife, one son and one daughter.

PAUL A. SALEMBIER, treasurer of Salembier & Villate, passed away the latter part of November at the home of his daughter.

ARTHUR C. COMINS, Worcester, Mass., treasurer for many years of Comins & Company, Rochdale, Mass., woolen manufacturers, passed away at his home December 14 following an illness of several weeks.

FRED H. DARY general manager of the Dary Ring Traveler Company, Taunton, Mass., passed away on November 11 following a brief illness of leukomania.

WALLACE E. NORRIS, 45, salesman for the Fulton Bag & Cotton Mills, Atlanta, Ga., succumbed to an attack of the heart early in December.

WILLIAM R. WALKER, 81, former secretary of the Leaksville (N. C.) Cotton Mills, passed away at his home about the middle of November.

JOHN RAYMOND MATTHEWS, 34, head of the trubenizing department of Eagle & Phenix Mills, Columbus, Ga., who was burned when a fire broke out in the napper room, succumbed to his injuries during November.

WILLIAM A. HETRICK, retired hosiery mill owner, passed away at his home in Philadelphia during November.

JOHN LEE NELSON, 84, pioneer textile manufacturer, passed away in Lenoir, N. C., the early part of December.

JACOB T. HINSHAW, 68, shipping overseer of the Revolution Cotton Mills, Greensboro, N. C., died suddenly while at work November 28.

53.8% OF THE LOOMS IN THESE SIX STATES ARE USING WARPS FROM

BARBER-COLMAN

SPOOLERS AND WARPERS

HEADQUARTERS

PAPER CARRIERS

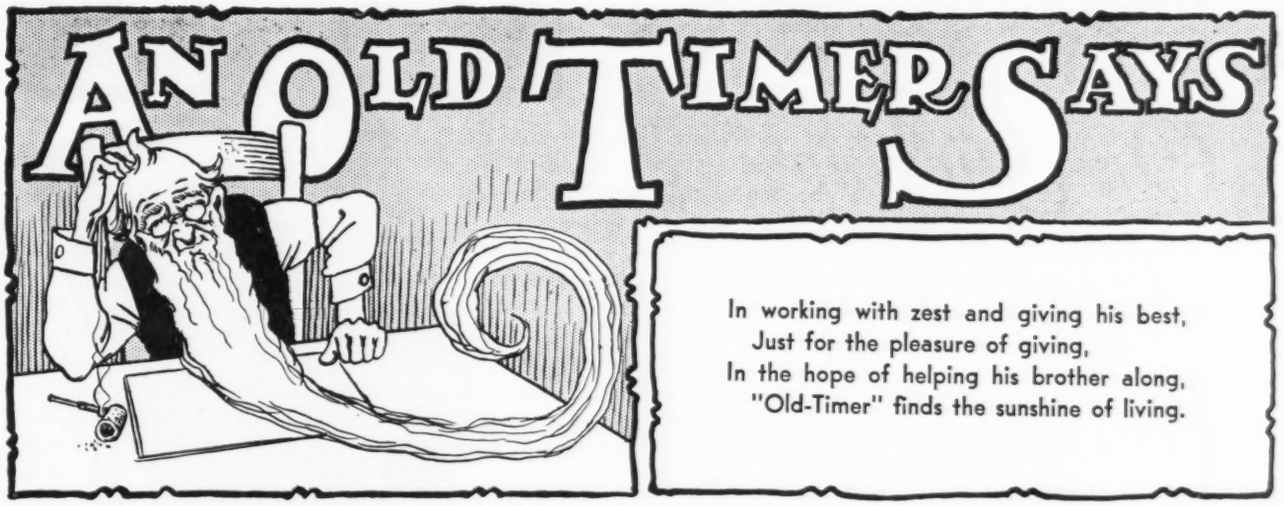
SONOCO

CONES
TUBES
CORES
SPOOLS
BOTTLE
BOBBINS

In keeping abreast of Textile Industry progress, SONOCO has developed a variety of products to meet every specific requirement for paper carriers and is today the recognized source of research and information on this subject. If you have a specific problem, communicate with HEADQUARTERS. Our Technical Service Department will swing into action.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Is Temper an Expensive Indulgence?

(It will be recalled that on the OLD-TIMER *page of the November issue of* COTTON, *we presented a letter from one of his readers, and urged other readers to address to him any questions or problems that might be on their minds. The following exchange of correspondence between* OLD-TIMER *and one of his readers is presented because it indicates the relationship between this author and his constituency, and also gives him an excellent opportunity of expressing some thoughts that are constantly in his mind and which are applicable to a great many of us as well as to the young man to whom they were directly addressed. All names, of course, have been changed in the correspondence.*—THE EDITOR.)

DEAR OLD-TIMER:

I have been a subscriber to COTTON for the past year and have enjoyed reading your articles very much. You seem like a man who could give me some much-needed advice. You will at once understand just what sort of a position I am in: About three years ago I was working in the full-fashioned department of a mill, having been in charge of that department for five years on the night shift. The foreman on the day shift, who was, of course, my boss, was a very broad-minded man and used a lot of common sense; he also gave credit where it was due. He secured a much better position elsewhere and left our plant. He recommended me as being capable enough to take over his job, but the superintendent said I was too young and that my turn would come later (I was only 20 years old at the time). The superintendent had a friend in the same mill who was a circular machine mechanic. He brought him into the full-fashioned department for me to show him different things about the machines, which I did. In time, as he learned a little, he began telling me how it should be done, at the same time taking charge of the department.

He began "passing the buck", as it were, about the different jobs he would have to do, and it got so bad that I left on that account.

Not being able to secure another fixer job at the time I took a job as a knitter at my present place of employment. About a month ago I was put in charge of the night shift and find that the foreman is the same type of man as the one I left. Also he has a good "stand-in" with the "higher-ups".

Here is where I am at a loss: I don't know whether to argue with him and stand a chance of losing my job or to let things go as they are and wait for a chance of another position. If you can give me any advice under these circumstances I will appreciate it very much.

"JESSE EDWARDS"

Old-Timer's Answer

DEAR JESSE:

I surely appreciate your letter describing the two grand rascals that have happened to be your bosses. I say I appreciate your letter, simply because I have been in the same position that you have more than once during my mill career. The English language is not adequate for me to describe to you just what kind of a person I think your first boss was, who, after you had been on the job over three years, and had proven to them that on the night shift you were doing even better than the man on the day shift, and when the man on the day shift left, refused to give you the job just simply because the boss had a "pet" somewhere else.

Then he had the nerve to ask you to take this new man into the department and show him how to run it, you going into details and explaining all about the different machines, then as you got this man trained, they had the nerve to allow him to take charge of the department instead of you. This is just about as low-down a trick as I have ever heard tell of being put over on a man, and if I were you I would certainly find some way to get even with that man.

If there is any possible way that you can find out anything that this man has done, on the outside, that you know would not look very good to his boss, I would either go to his boss and tell him about it, or write to him. Of course you need not sign your name to the letter unless you want to.

I note that you say that this man was put in over you and continued to "pass the buck", and knowing

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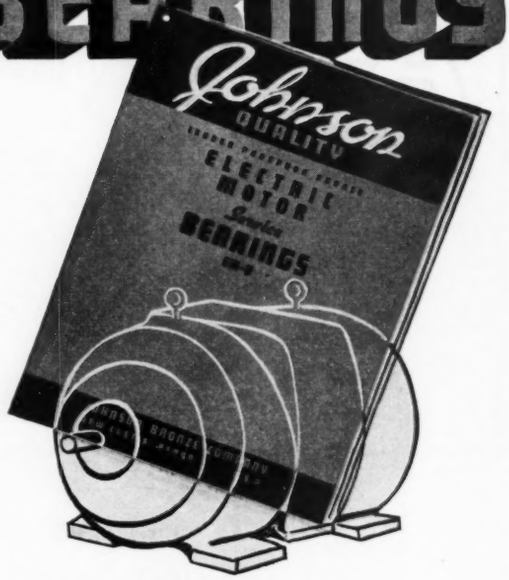

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also that the boss had it in for you, you finally decided to give up the job. Then you go on to relate that as jobs were rather scarce, and as you were unable to secure another job like that, you took a job as a knitter, and that is where you are now—gosh! that's a tough break. Later, you were put in charge of the night shift, and now find to your horror that the foreman of this mill is the same kind of a low-down cuss you left in your other position.

He has a "stand-in" with the "higher-ups", and now you are up against the problem as to what to do in this case, and have written me for advice. As stated above, I think that it is an outrage for a man to have to work for such low-principled employers, and believe that there is some way for you to get back at them. I know it would be a great source of satisfaction if you could only do him "dirt" in some way, to repay him for the under-handed way he has treated you.

One hour later

DEAR JESSE:

I was interrupted during the dictation of the above, and have now come back to finish answering your letter. However, in the meantime, I have had time to reflect on what I have said, and also have had time to "cool off" some after reading your letter, and now believe that I can really sit down and give you the advice that you should have.

As you don't know me personally, I'll give you a little background in preparation for the answer that I am going to give you to your letter.

More than 25 years ago, when I had my first foreman's job, I decided that I would make a study of the causes of foremen, overseers, superintendents, and managers losing their jobs. In other words, every time I would hear of a foreman, overseer, or superintendent losing his job, I would make it a point to continue to inquire until I found out the real cause for this man's losing his job.

After compiling information for a number of years, I finally decided that the three most common causes for men losing their jobs were as follows: drinking, women, and temper.

There is one of these three that far overshadows the other two, and I don't believe that the average young man would make the correct guess, when guessing which of these three is the cause for the most foremen, overseers, and superintendents losing their jobs.

Before you guess the answer, I am going to talk to you very frankly, because you have written me very frankly and, as stated, I am going to give you the value of more than 25 years' experience. I hope that you will take this advice in the spirit in which it is written, as it is written in no other spirit except in the hope of being of service and help to you.

The first part of this letter probably sounded to you just like what you wanted to say to those men who have given you the supposed dirty deal, and I was talking right up your alley, so to speak, in the way you felt toward those men.

Well, here's what is my honest opinion, and that is, that Jesse Edwards is the man who is to blame for all of the conditions that you have explained to me.

Yes, I know that is a broad statement, and you are going to resent it, but I still claim that you are the man to blame, not those bosses of yours who gave you such a dirty deal, and who had their pets, and who stood in with the "higher-ups", as explained in your letter, matters not how low-down and unprincipled they are.

No, I am not crazy, as you are probably thinking at this very moment, but I am giving you what I know from my own personal experience is not only sound advice, but the statement I have made that YOU are the one to blame instead of the man you complain of, is a fact.

Now then, I am going to answer as to which of the three above-mentioned items was the cause of most foremen, overseers, and superintendents losing their jobs, and that is T-E-M-P-E-R. If space would only permit my going into detail, I could cite you specific instances and even give names (which, of course, my editor would not permit), to show you that there have been more men who have lost their jobs on account of their TEMPER, than by the other causes on which I have been able to compile information.

To show you how positive I am of this statement, and to give you a specific instance that will prove to you that I could not be talking out of my hat, I make the *positive* statement that the lady who is taking this dictation can vouch for the truth of the foregoing statements, because she has come in personal contact with this work and knows of her own accord that what I have stated are facts. She actually had the kind of "boss" you have described—she had definitely made up her mind to resign the first of the year. I talked to her like I am talking to you. When I told her *she* was the one to blame and not the unprincipled "boss" she was very much insulted, but I had her where she could not get away and I continued to reason with her until she agreed to try my system. That was almost one year ago—now she is not only getting along fine with the "Boss" but she is enjoying her work.

Jesse, I claim that if you had taken the right attitude toward your employer and to your associate foreman at the first plant where you had been employed, that you would not only have that position there today, but just as sure as death and taxes, if you had used good judgment, and not have let your temper cause you to leave, you would have, in time, got the promotion there that the superintendent had in mind when he said to you that "your turn would come later on."

Now then, since that is water gone over the dam, let it be an experience to you, and profit by it. You know, mistakes are one of the most valuable experiences that we can have, providing that we will profit by those mistakes—that is, don't make the same mistake a second time—then you will always be gaining.

Therefore, your attitude toward the men that are working with you, and your attitude toward the men whom you are working for, must be entirely different from the ideas that you have had in the past.

Unless you had money to set up a business of your own, you will have to take a different attitude as long as you are working for someone else. That is one fact

(Continued on page 107)

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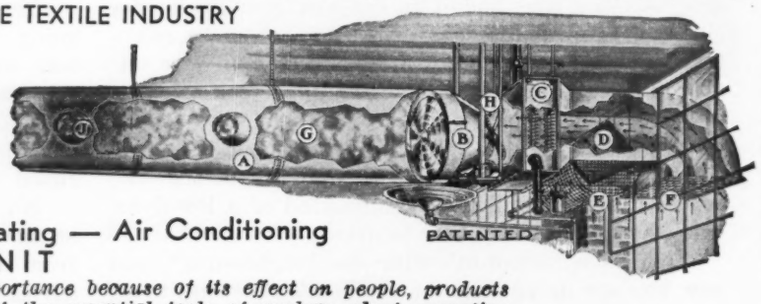

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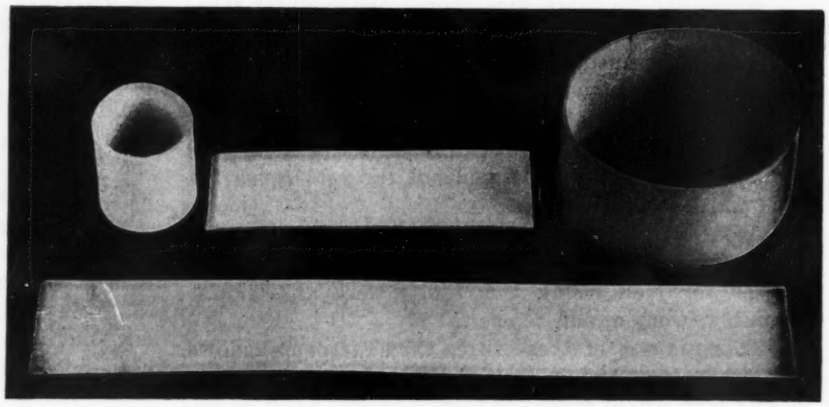

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Comments for "Wash"

This man files his magazines; from a day's rambling through back issues, we get his ideas on "Wash" and his methods . . . . . .

EDITOR COTTON:

In rambling through my back files of COTTON, I came across a question by "S. I. C." (N. C.) on page 73 of the November, 1933, issue. "S. I. C." had answered a question submitted by "WASH" (R. I.) on the causes of the ends on a roving frame becoming slack and tight, and at the end of his article he requested information on a problem of his own. It read as follows:

"If I am setting up a fly frame among others of a different make and can't get the right flyer speed, hence the front roll speed desired, can I effect the desired change with the gears? Suppose I have a 45-tooth gear on the jack shaft which drives the spindles and a 48-tooth gear on the top cone, receiving motion through an idler from the twist gear. I put a 48-tooth gear on the jack shaft, which causes the spindles to go 48-45 as fast as they did and I next put a 45-tooth gear on the top cone shaft (a driven gear) which causes the top cone, and hence the front roll, to go 48-45 as fast as they did. The spindles and front roll have now been speeded the same amount and I have an 18-tooth gear on the bottom cone. What size bottom cone gear do I need to make the fly frame run? Is it practical to speed up fly frames in this manner?"

Upon turning through the issues of your paper month by month, I found the answer to this question by "WASH" on page 69 of the January, 1934, issue. His answer was in the affirmative, but he qualified it by saying that it may be practical to speed the fly frame in this manner *if* the spindle speed is not excessive. To better understand this answer, I quote here from the letter by "WASH":

"My answer to his question is yes, if the spindle speed is not made excessive. Please be reminded that the greater the spindle speed, the more pressure at the end of the presser pad, which creates unequal conditions.

"For the sake of illustration, we will assume that a 48 top gear drives the front roll at 122 r.p.m. On the jack shaft a 45 gear drives the spindle 1,200 r.p.m., which is the proper speed for a 7x3½ fly frame.

"A 45 gear on the top cone would give a speed of about 130 r.p.m. on the front roll. A 48 gear on the jack shaft would give a spindle speed of about 1,280 r.p.m.

"So, in the first case, before the change we have $122 \times 3.53 = 430.66$. Spindle speed, $1200 \div 430.66 = 2.78$ turns per inch.

"After the change we have $130 \times 3.53 = 458.90$; spindle speed $1,280 \div 458.90 = 2.78$ turns per inch.

"So, conditions are same as regards the construction of the strand, but the spindle speed is too great.

"I fail to see why the cone gear should be changed to run the frame. The top cone changes the excess speed, and the gear on the jack shaft changes the standard speed. Therefore, other conditions remain the same, and the position of the cone is not changed, so it would be wrong to change the cone gear."

In the February, 1934, issue, on page 108, "S. I. C." admits that he had asked a question that probably no mill man ever had considered and he clarified his former question by stating that he had moved his frame to a location where the overhead shaft and pulley would not give the proper speed, and had failed to make the fly frame run two changes even when he had doubled the 18-tooth cone gear. Then he gives his own explanation of his question:

"If only the top cone gear had been changed, the top cone would have speeded the bottom cone and hence the bobbins the exact amount to have compensated for the front roll speed increase. This was precisely equivalent to changing the twist gear from a 45 to a 48, which change is a common practice. But to increase the spindles 6.6 per cent in addition to this, brings on more talk.

"Take 'WASH's' own calculations on the question, as given in his letter on page 69 of the January issue. He assumes that the 48 top cone gear causes the front roll to go 122 r.p.m. and that a change to a 45 top cone gear would thereafter increase the front roll speed to 130 r.p.m., and that a 45-tooth jack shaft gear would cause the spindles to go 1,200 r.p.m., and a change to a 48 gear would cause the spindle speed to increase to 1,280 r.p.m.

"The top cone changes the excess speed all right, the same as changing from a 45 to a 48 twist gear would have done, but what are we going to do about the flyer going around the bobbin 80 times more per minute? Won't the bobbin need to go 80 revolutions more? The bobbins must travel as fast as the spindles, and enough in excess of this speed to wind on the amount of roving delivered by the front roll.

"If the speeds were right before the change, the speed of the spindles after the change would cause the 1⅜-inch empty bobbin ordinarily used on a 7x3½ frame to get about 345.6 inches or 9.6 yards behind with its work each minute. There would be a slackening of 5.7 inches per second.

"'Wash' failed to see why the cone gear should be changed to run the frame. Perhaps he had in mind some other change."

To which "WASH" replied on page 97 of the June, 1934, COTTON that "S. I. C." has "the wrong idea of excess speed on a fly frame" and requests that "S. I. C." study the following:

"I. The surface speed on the bobbin must equal the surface speed of the front roll.

"2. When you increase the speed of the front roll you increase the surface speed of the bobbin.

"3. The flyer and bobbin revolve together in order to insert the twist.

"4. If we could draw the roving through the flyer without the twist we would not want or need the constant speed.

"5. Therefore, when you speed the top cone you speed up both the surface speed of the front roll and the bobbin."

Here I wish to say to "WASH" that the surface speed of the bobbin must exceed the speed of the spindle before there is any winding accomplished. When the spindle is speeded in the manner that "S. I. C." suggested and as "WASH" says, "If the twist gear was 24 teeth before the change, all that "S. I. C." had to do was to change the gear on the jack shaft from 45 to 48 teeth and put on a 26 twist gear and the problem is solved", the question was no problem at all.

When the twist gear is changed, the front roll is speeded in the same ratio as the bobbin, and the frame is still out of proportion and will not wind the stock delivered by the front roll fast enough. This is be-

cause when the spindle speed was changed, it was the spindles alone, whereas the twist gear changed three speeds at once, namely, the speed of the front roll, the speed of the bobbin (only in proportion to the front roll), and the speed of the lay gearing.

After making the change on spindles as "S. I. C." suggested, the changing of the twist gear does not completely correct the relation of speed as indicated by "WASH" any more than the twist change will correct lay speed when changing from one hank roving to another. If it did, the lay and tension gears would not be changed at this time.

The fixed gear on the jack, which is part of the compound gearing, is the one that drives the bobbins at the rate of the spindle when the cone is raised or when the twist gear is out of mesh. The cones are the governors of excess speed on the bobbin gear, relative to the size of the bobbin, in that they drive the sun wheel in an opposite direction to that of the jack shaft, thereby causing the fixed gears of the compound to impart a greater speed to the bobbin gears, and the greater speed the sun wheel has in this direction, as when the frame is started after doffing and the cone belt is on the small end of the bottom cone, the greater speed is imparted to the bobbin in order to produce a surface speed on the bobbin that is enough in excess of the spindle speed to equal the delivery of the front roll, less, of course, the percentage of contraction due to twist.

The change of twist gear speeds both the front roll and bobbins in the same proportion, so how can it right the change made by "S. I. C."?

Is This Right, "Wash"?

If the reasoning of "WASH" is correct, why not use gears twice as large as the present ones on the jack shaft to drive the spindles, putting in smaller idler gears, of course? This is assuming that the stud could be moved around in order to do this. Then put twist gears on that are twice the size of the regular ones, and cut the speed of the overhead shafting and jack shaft in half. According to "WASH'S" statement, this would be possible.

To this I say, no! In order for a frame to run in this manner there would have to be a special compound built for it. This would not be necessary in making the change that "S. I. C." suggested; it will be seen further along in this letter that if the jack shaft gear that drives the spindle breaks, it is only necessary to put one on with any number of teeth just so it is of the right bore and pitch, put an idler in to fit, and change the twist gear in proportion—everything will be all right, according to this reasoning. But if there are different makes of frames, all built by the same company but with different gearing, there will be a different size compound gearing to match them—and I have seen this on frames using the same size bobbin and spindle gears. I wonder if "WASH" ever saw that?

"WASH" says that the pressure of the paddle is so great at the beginning of the doff that it will almost keep the spindles up to speed, even though the spindle gearing be disconnected, thus causing the cone belt to either do more work or causing it to slip unless there is a special cone belt on the bobbin lead frames. I have seen cone belts slip some when they were at the small end of the bottom cone and also when at the small end of the top cone. According to "WASH'S" theory of the pressure of the paddle becoming less as the bobbin fills, surely it does not cause the belt to slip when the bobbin is almost full and the belt is on the small end of the top cone. I think all of this slipping is due to the fact that the belt is on one or the other small ends of the cones where the circumference is smaller and there is less surface on which to grip; in other words, the arc of the circle on the cone that is presented to the surface of the belt is too small when the belt is in either of these positions. When the bobbin is almost full there is a greater load for the lay gearing to pull; as this is driven by the bottom cone, the trouble is due to the heavy load. Also, when the bobbin is full it presents a greater surface to receive air resistance. This is exemplified by the short fibers which are drawn out by this resistance and which cling to the flyers, also causing the cone belt to perform more work at this part of the run than when the paddles are exerting so much influence on the spindles (as he says to almost keep them up to speed). Am I right, readers?

Other Comments on Statements Made by Wash

"WASH" has often made the statement that there is a great deal of difference between method and problem. Yes, there is a difference in the problems he gives us and the only method of solving them is his method. In his article to "D. E." on page 104 of the June, 1934, issue of COTTON he says, referring to a breaker lap being larger in diameter at one end than at the other, "In case of oil spraying or running stick waste through the opener, some of the oil will find its way to the upper end of the conical beater shaft and a lot of stuff will collect where the stock enters the beater box . . . The thread from the stick waste will collect in the same manner and cause the same evil. In other words, the sweep of the collected stock and threads force more stock on one side, and even with a perfect draft through the picker, the most of the stock remains at the side". Can anyone imagine a perfect draft through any picker with a beater wrapped or clogged in this manner, creating a fan of its own blowing the stock to one side?

In this same letter to "D. E." he says:

"In all mills running waste, strips or colored work, very good judgment must be used in setting the rolls. Now, when the reader has a little time, let him set the second line of rolls on any drawing frame ⅛-inch over the proper setting; in other words, set the second roll ⅛-inch away from the first line. Next, run the frame, and it will be found that the web will be slacker. Next, move the second line ¼-inch closer and start the frame again and it will be found that the slackness will disappear and instead there will be a tension on the web. It is termed the art of drafting because it takes years of experience to know the exact amount to move the rolls to create the slight change desired in the web."

If the rolls are at the proper setting to begin with, and he admits they were, are they properly set when he moves them in either direction, as he states he does in order to create the slight change desired in the web? Is this good judgment? So much for that.

On page 98 of the same issue he states that if any-

one can dig up in any of his articles the place where he boasts of being a practical man, he will pay him five dollars. Well, on page 91 of the same issue he says, "Does the change in the twist gear call for a different bottom cone gear? If not—and all practical men know it does not—then how does 'R. H.' blind us with science with his fancy figuring?" I guess "WASH" included himself in the aforesaid practical men, though I don't see why as the change suggested is to "S. I. C.'s" frame after changing the gear on the jack shaft, which drives the spindles, and unless there is enough room to move the cone belt toward the smaller end of the bottom cone, the cone gear will have to be changed just as if a bobbin being run were changed to a bobbin of smaller diameter. I suppose "WASH" would change the twist gear and make it take up the slack anyway.

Now I don't want "WASH'S" five dollars; neither do I want to draw him into an argument, but if he will open his mind and admit that some of the rest of the fellows can be right sometimes, even if it be a textile graduate, he would fair better. I am not a real old man, but I have been brought up in the mill since I was ten years old; I have tried other men's ideas, studied books of many kinds on mill work, and am now taking a textile course trying to learn more about my work all the time. I don't believe any one man will ever know all there is to learn about textile machinery and processes. All mill men have some good ideas and ways of doing things.

I have seen some of "WASH'S" ideas that I agreed with heartily, so let's profit by them. When "WASH" gives his answer to this, I would like for him to give facts and no catch problems such as: One revolution of the compound will wind three inches of roving while the frame is stopped. How many will it wind while the frame is running?"

CONTRIBUTOR NO. 6569

Mixed Filling in the Weave Room

EDITOR COTTON:

I can certainly sympathize with "CONTRIBUTOR NO. 6596" in his big problem of mixed filling in the weave room where he sometimes runs as high as 20 or more different numbers at one time. His question appeared on page 105 of the December issue of COTTON.

We never used mill crayon, but up until about a year ago we used a special powdered chalk which we could buy in many colors but have discontinued using this because the colored chalk would show up on some styles of cloth after the cloth was put in the finished state and where it was not wet out before being run.

Since we have discontinued using chalk, we have painted the tips of our filling bobbins to identify the different filling numbers. We have the tips of our quills painted about 10 different colors and can put as many as two or three yarn numbers on the same color tip quill by putting coarse and fine numbers on the same color tip quill. We run from 3s to 20s in filling numbers, and as an illustration, we put 3s and 10s and 20s on the same color tip quill, as there is no danger in these three numbers becoming mixed if any precaution or intelligence is used.

As our spinning frames are doffed, the yarn is dumped into filling boxes which hold about 100 pounds of filling. These boxes have a ticket fastened on them showing the yarn number and are pushed to the filling conditioning room; the weave room uses the yarn from this room as it is needed. We have a filling box at every loom which is tagged showing the yarn number being run on each loom, and the filling haulers, battery fillers, and weavers are trained particularly to watch the color of the tip on the filling bobbin, and if there is a doubt in their mind whether the right kind of filling has been laid up, they are to call someone in authority and get this matter straightened up.

I do not mean to infer by this that we never have any mixed filling or that our system works perfectly, but it is the best I know of as we are not able to use colored chalk.

Our trouble was not due to the fact that the crayon prevented rubber from sticking to the fabric, and I would suggest that "CONTRIBUTOR NO. 6596" try using large sticks of colored powdered chalk; I do not believe any difficulty will be experienced in preventing the rubber from sticking to the fabric. However, if this contributor's fabric is used without being wet out, he may run into the same difficulty which we did and which was outlined previously.

I hope that this article will be of some value.

CONTRIBUTOR NO. 6599

EDITOR COTTON:

In reply to "CONTRIBUTOR NO. 6596" with regard to his problem of handling his large number of filling numbers, we have had several problems connected with handling our filling in the weave room, due to the large amount of colors and different numbers. We have never had any trouble in separating our different colors or numbers by the use of crayons in marking the colors.

If "CONTRIBUTOR NO. 6596" finds that he cannot use crayons in marking his fillings, the most satisfactory way of solving his problem is for him to purchase additional quantities of filling quills, and paint the tip-ends of them to distinguish the different numbers. The only thing necessary, however, in working a proposition of this kind is to have a sufficient amount of quills on hand. The system he is now using as described on page 105 of December issue, is as good as could be found, and only requires the purchase of more quills.

As to the filling chutes he uses, there is a method of handling filling in these chutes that we have heard of but do not use, which might be of some interest to him. This system involves the use of canvas bags which have zipper tops and a tag on each bag for the yarn number and color. The filling is doffed into these bags, which are then closed, put into the chutes, and then can be emptied from the bags into the filling boxes on the looms in the weave room.

These are about all the ideas we can suggest in the way of helping "CONTRIBUTOR NO. 6596" on his problem of handling filling numbers.

CONTRIBUTOR NO. 6603

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Controlling the Width of Fabric on C & K Looms

Mr. Moberg also mentions "width indicators," which are beneficial and easy to install . . .

WE RECEIVED a problem recently from a mill man who stated that he was having trouble in controlling the width of seven-quarter sheeting on a seven-quarter Crompton & Knowles plain loom. He wrote, "This cloth is 64x64 made from 22s warp and 22s filling. It is sold and used in the gray state. We use a friction chain for our let-off that is put around the beam head on each side of the warp. These chains are made for the purpose, are well lubricated, are wrapped twice around the friction drum and are weighted with a lever and weights. The cloth varies in width every few yards from 63 inches to 63½ inches to 62½ inches to 62 inches to 63¼ inches and so on."

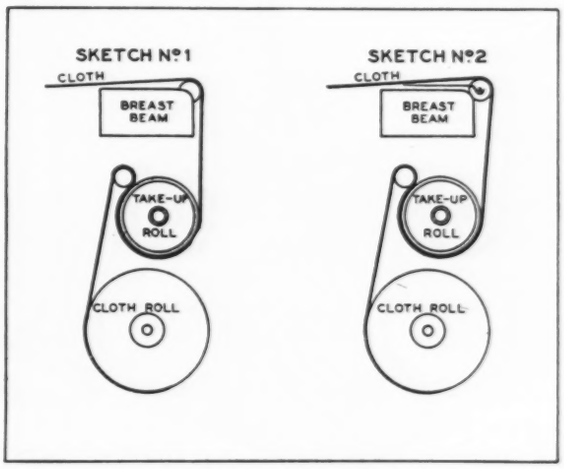
These remarks were passed along to Ivar Moberg for consideration and comment and he replied, "Sheeting is a sensitive fabric to variation in tension. Without seeing the looms in operation, I can only give the inquirer some of the causes of variation in width of sheeting and I must leave it to him to eliminate all those causes that do not apply in his case. It is better to use single-acting levers and add weights to gain the proper tension than to use compound let-off levers with insufficient weights. Some chains are too heavy to lay properly between the flanges of the friction drum. I suggest that the inquirer see that there is ample room for his chain to work without binding and also see that it is not twisted on the friction drum. The chain should not ride the friction drum flanges as it will sometimes do when the let-off motion is incorrectly located.

"Friction drum not running true, being broken or scored, crooked or bent beam gudgeons and unbalanced beams will cause uneven width cloth because the friction is irregular. These factors may be checked by placing the empty beam on the center rests in a lathe and revolving the beam.

"A slipping take-up motion will also cause variation in the width but as this would also cause thick places in the cloth and the inquirer does not mention this, it is not likely to be the cause. On a Crompton & Knowles loom there is generally a low take-up roll and this makes the cloth much more sensitive to variations in tension than a loom with a high take-up roll. If, in addition to the low take-up roll, the cloth comes into contact with a large surface area of the breast beam, the cloth will be supersensitive to variation in tension and subsequently in width. In some cases it is advisable to place a glass-smooth stick on the breast beam in such a position that it will keep the cloth free from the rest of the breast beam. (See Sketch No. 1). A revolving roll in front of the breast beam and set high enough to keep the cloth free from the breast beam is preferable, however. (See Sketch No. 2).

"The enormous variation in width, 62 inches to 63½ inches, seems to be unreasonable altogether and the inquirer should make a careful check of the beam and the let-off motion. Also, the humidity in the room should be kept constant.

"As a closing recommendation, I suggest that the inquirer place width indicators on front of the



Manner in which cloth is kept free from the breast beam . . . . . .

breast beam. These are nothing more than one small wire finger, double bent to prevent injury to the weaver, at each side of the cloth as it runs over the breast beam. These are set close to the selvages of the cloth when the measurement shows the correct width. It is then easy for the weaver to see whether the cloth has the correct width, and if not, he may immediately adjust the tension to give the correct width. The indicator fingers should be mounted in such a way that they can be slid for adjustment to the proper width."

Varnishing Leather Rolls and Their Care

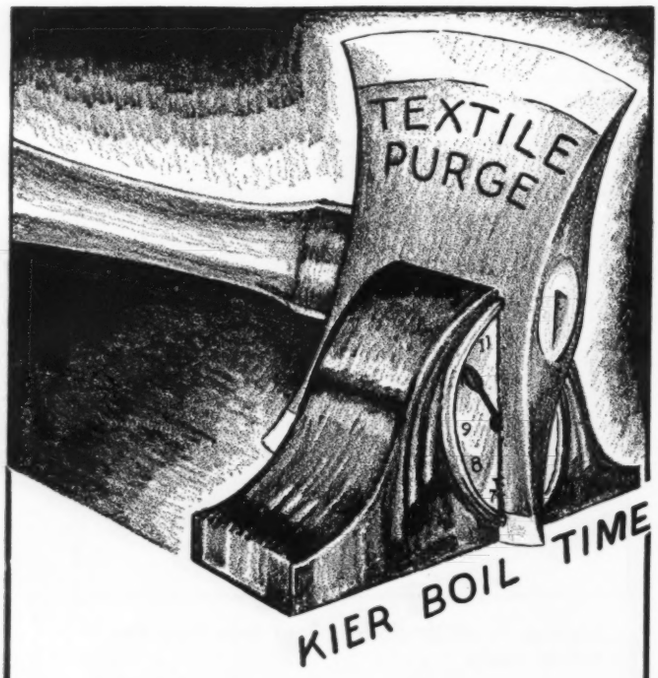
In which several formulas are given for the varnish solution . . . . . .

EDITOR COTTON:

As the upkeep of rolls is a very big item in the mill, I trust the following notes on the care and varnishing of leather rolls will be of value to your readers.

Usually the rolls on the following machines are varnished: drawing frames, railway heads, silver and ribbon lap machines, combers, and, sometimes, slubbers. Intermediate and roving frame rolls may be varnished also. On some classes of work better results are obtained if the intermediate and roving frames are run with varnished leather rolls. It is an inexpensive procedure to run tests in various machines on different classes of cotton, etc.

It is also well to experiment with different types of varnish and different methods of applying the varnish. Some formulas for varnishes that give excellent results are given below. The requirements of a good varnish are, essentially, that it will have good wearing qualities, that it will not harden the leather, that it will not crack or chip, and that it will not peel off the roll. It must also possess quick-drying properties, be easy to apply, and last but not



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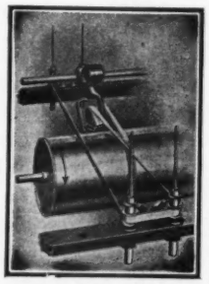

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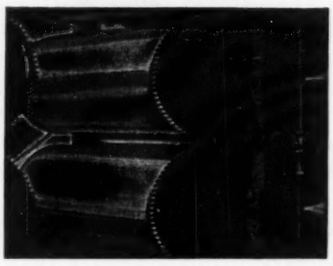

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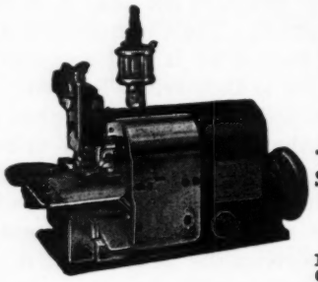

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least, it must be easily removed when a re-varnish job is necessary. Here are several formulas that will meet the above requirements:

No. 1

80 ounces good plate glue
80 ounces ground gelatin
12 ounces burnt senna
1 ounce oil of origanum
3 pints acetic acid (commercial grade)
1 pint water

Dissolve the gelatin and glue in the acetic acid and water, allow to stand in a warm place for several hours, and stir the mixture occasionally until it is entirely dissolved. The oil and coloring should be added after the glue and gelatin are dissolved.

No. 2

3 ounces glue
1 ounce acetic acid (commercial grade)
½ teaspoon brown sugar
½ teaspoon oil of origanum

Dissolve and add the coloring matter which gives the varnish a better body. When using this formula in hot weather it is best to add one-half teaspoon of borax to the mixture.

No. 3

1 quart vinegar
7 ounces glue
2 tablespoons gum tragacanth
1 heaping teaspoon borax
1 teaspoon brown sugar

This is to be cooked for about an hour and thickened with lampblack and princess metal.

No. 4

2 quarts ground glue
1 piece sal ammoniac (size of egg)
2 teaspoons brown sugar
1 tablespoon dissolved gum tragacanth

Dissolve this in vinegar and add the coloring.

There are several methods of applying the varnish to the rolls. One way is to apply it with a brush, using due care so that it will leave a true, smooth surface as the varnish dries.

Another method is to use a smooth board of convenient size, part of which is covered with a good grade of clearer cloth stretched smooth and tight and tacked at the edge of the board. The varnish is applied to the cloth with a brush and the leather roll is rolled back and forth over the cloth until the roll is fully covered with the varnish. When the rolls have all been varnished, the cloth is removed and all varnish washed out so that it will not dry hard and stick to the board.

In some mills the varnish is applied directly to the leather roll with the fingers only. The fingers are dipped into the varnish and rubbed carefully on the leather.

Of course, in using any method, the object is to produce a surface that will be as smooth as possible, and give sufficient protection to the surface of the leather. The board method is the quickest way but care must be taken to insure an even coat of varnish. Applying the varnish with the fingers takes a considerable amount of time but if it is done by an experienced person it produces a surface that will give excellent results.

In varnishing the rolls they are usually given one coat of varnish, but on fine numbers, two coats of varnish are quite often used. On new rolls or rolls that have just been recovered it is sometimes advisable to use three coats. Each coat should be thoroughly dry before adding the next. In re-varnishing old rolls, all trace of the old varnish should be carefully washed from the leather, otherwise a surface will result that will be rough and unsatisfactory all around.

The rolls should be perfectly dry and hard before they are placed back in the machines, otherwise they will stick to the cotton. Also, if the surface is not properly dry, the bottom rolls will flute them quickly.

In fine spinning mills, where combers are in use, there is a practice in general use that is entirely to be condemned. I refer to the practice of grinding the original surface off the leather. This is done to produce a roll that will be perfectly true. If more thought and attention were given to the work at first this would be unnecessary and a true surface could be had just as well. The life of the roll is greatly prolonged and better work produced when the covering is put on true in the first place and the grinding eliminated entirely. So much for the varnishing of rolls.

General Care of Rolls

Under the general heading of the care of rolls, the first essential attention that they should be given, is, necessarily, proper oiling. They should be oiled at regular intervals under the supervision of a responsible person. It is much better that they should be oiled often and sparingly, rather than less frequently using a greater quantity of oil. When a generous amount of oil is applied to the rolls, it will invariably find its way to the covering, causing stained work and loose coverings.

When rolls are not oiled often enough, they naturally run hard and will produce poor work; the skins will also become rough due to the increased friction necessary to drive them.

When rolls become rough, grooved, fluted, or loose, they should be replaced at once. Rolls should never be run that are not in good condition. Regular weekly check-ups should be made by the second hand on slubbers, intermediates, roving frames, and spinning frames. If just a few rolls are defective only the bad ones should be replaced. However, if an excessive number are bad, the whole frame should be changed. It is good economy when the frame is changed to pick out all the rolls with life left in them and to use them on frames where only a few replacements are necessary.

In changing the rolls on an entire frame, quite often it is advisable to replace the entire front row with new ones and use the good ones taken out to replace any bad ones in the second and third rows. This plan, of course, can only be applied on frames

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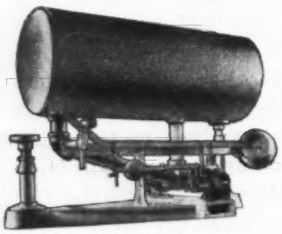

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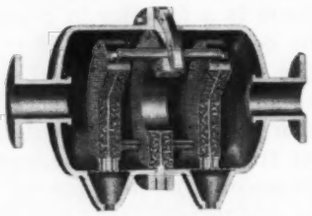

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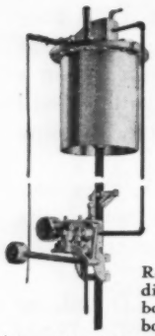

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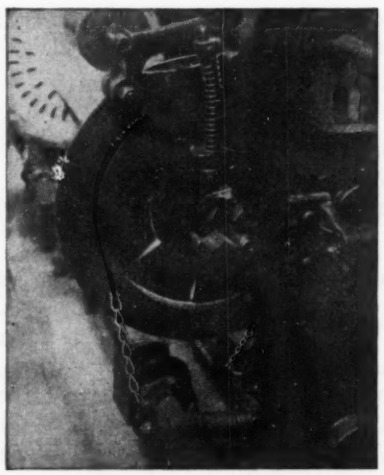

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having all three rows of rolls alike.

Any man who makes careful periodical check-up of rolls will find that those machines run by his best hands are the machines that get the full value from a set of rolls. Rolls that are well cared for regularly will give double the service of rolls that are neglected.

When machinery is stopped for a few days or longer, the weights should be dropped to take the pressure off any type of covered rolls. This prevents flat places or flutes being put in the rolls at the point where they come in contact with the bottom rolls.

CONTRIBUTOR NO. 6460

"Jock" On Combers Again

EDITOR COTTON:

I have mentioned in one of my letters that I would like "CONTRIBUTOR NO. 6406" to explain what he meant in his letter on page 82 of the December, 1935, issue of COTTON in the seventh paragraph where he makes the following statement regarding setting the steel detaching roll to the segment: "Some fixers like to work from each end toward the center, but I prefer to start at the head and work to the foot. The reason for this is that the first head has the longest pull on the coiler table and therefore must be the strongest end as it gets no favoritism, and if any adjusting of the final setting has to be done to compensate for the variation of machined parts it is better to do this adjusting at the foot end."

I know that this roll must be checked every time any re-setting is done as there is always a chance of its getting moved under the condition that the roll works. I cannot see why any adjusting needs to be done to compensate for variation of any machined parts because when the comber is first built, the manufacturers allow about 1 to 2/1000-inch play in bearings, so with this and the length of time the roll has been running and has bedded down in the bearings, there should be practically no trouble to line the roll to the segment and have the roll turn freely. I know the first or No. 1 head has the longest pull on the table, but the table is nickel-plated and polished, and with the calender roll in the middle of the sliver table, there should be no trouble in drawing the slivers along the table; I cannot see how the setting of the roll has anything to do with the tension of the slivers on the table. The sliver pan on this comber is designed especially to cause the selvages of the combed sliver to be turned into the center of the sliver as the sliver is drawn through the trumpet.

How many of the readers realize the delicate treatment the fibers receive during the time of detaching, for that is what it can be called, even if there is more of a snatching action on some combers? Consider the width of the fibers that are drawn forward each time the detaching motion is completed; there may be 10, 11, 12 or 13 inches width but what does it weigh when we figure the length also? If we are combing a 600-grain lap, the weight

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◆ ◆

of the amount detached is no more than three grains. I have not asked the amount of waste removed but what I stated is approximate, according to the amount of waste removed. Then again the weight and width of the lap must be considered—that is why I stated the width of the fibers or slivers that are drawn forward. When readers think about combers they should remember these little details. The roll is not continually turning in one direction all the time like on a spinning frame, but is intermittently turning backwards and forwards and as light as the sliver is that is drawn forward, if the leather roll is not true and is bedded on the steel roll across its width, the fibers cannot be drawn or detached forward. The sliver will show light places when the fibers are not drawn forward. Even when the leather rolls require varnishing they will affect the sliver because they do not have the same smooth surface and the same grip and this has a tendency to affect the piecing a little. As the steel detaching roll backs off the sliver, the fibers sometimes stick to the leather roll or whip up causing curly places to show in the sliver pan.

There are other things that will cause curliness and cause the sliver to look as if it is being cut. If we do not get a good draft through the aspirators or if any individual head is blocked, the brushes set too deep will create a back draft. Leaving the waste chute cover open is a bad practice also. The fan pipe should be kept clean and dry; the inside fan must be clean, too. The ends of the leather rolls should be lubricated and the hooks for weighting the rolls should have a little oil on them. In fact, any other part that may hinder the movement of the roll should be oiled, especially the bell crank levers.

The feed roll brackets on the Nasmith comber have a small oil hole so that the ends of the roll may be oiled. The bottom calender roll in the draw box is another that is sometimes neglected. When the sliver breaks and the cotton is wrapped around the neck of the roll, I have seen some men cut the lap without taking the brass bearing cap off and leave cotton wedged between the draw box stand and the calender roll. It becomes packed so hard that it will singe or burn and the bearing will run dry and hot causing the draft gear to break. It is also likely to spring the end of the bottom calender roll which will make the gears run untrue, the roll jump and general bad work.

JOCK (MASS.)

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216. Cutting Costs with Liquid Caustic Soda—a 72 page hand book packed full of useful information on liquid caustic soda, including unloading and handling properties of caustic soda and its equeous solutions, sampling and analysis. Of practical value to executives, buyers, chemists and operating men. Sent without obligation by writing on your business letterhead to the Mathieson Alkali Works, 60 East 42nd St., New York, N. Y.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

219. My Strap-Book by Doc Steelstrap—16 page illustrated catalog describing the hundreds of ways that Acme steel strap can be used to advantage in connection with paper boxes and wraps in making safe, economical shipping packages. The strap-book will convince you that Doc Steelstrap and his assistants do a thorough job of the packing and shipping business. Acme Steel Co., Chicago, Ill.

220. The American Monotractor—24 page booklet illustrating electric drives for cranes, hoists and carriers on MonoRail conveying systems. This book outlines some of the control features that make possible complete and semi-automatic transportation of heavy loads from process to process, building to building. The American MonoRail Co., Cleveland, Ohio.

221. A New Overhead Automatic Cleaner — Folder showing the new American MonoRail automatic cleaner in operation on MonoRail track circuit over spinning, warping, winding, twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Co., Cleveland, Ohio.

222. "Onyx Processing and Finishing Compounds"—A new 56 page catalog describing the entire line of processing and finishing compounds and covering every process on all types of fabrics. Also included is a comprehensive article on the subject, "The Importance of Accurate pH Control." Onyx Oil and Chemical Company, 15 Exchange Place, Jersey City, New Jersey.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

225. Houghto-Size AC — Showing characteristics a warp sizing compound must have for modern rayon fabrics, weakness of former sizes and the unusual advantages of Houghto-Size AC. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

226. Stainless and Heat Resisting Castings—folder illustrating and describing stainless steel castings for corrosion and heat resistance and listing the various alloy castings available and their properties. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

227. Stainless Steel Valves and Pipe Fittings—complete illustrated catalog, together with price list, covering stainless steel valves and valve fittings, giving all dimensions, data, etc. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

229. Over 40 Million Tons—Attractively printed folder listing the producing companies which mine the high volatile coals which are specifically suited to particular industrial requirements. Appalachian Coals, Inc., Cincinnati, Ohio.

230. How to Profit With Air Express—attractive folder pointing out the advantages of air-rail express. Giving rates and time tables, this folder should be in the possession of every textile manufacturer. Railway Express Agency, Inc., New York, New York.

231. Spindle Tape Lacing Equipment — Illustrated folder describing the new Clipper spinning tape lacing equipment, gives vibration chart, prices, specifications and other valuable information. Clipper Belt Lacer Co., Grand Rapids, Mich.

232. Condenser Tape Lacing Equipment—Describing in detail the new Clipper condenser tape lacing equipment, this folder contains table of decimal equivalents, prices, specifications and illustrations of the lacer, hooks and cutter. Clipper Belt Lacer Co., Grand Rapids, Mich.

233. Catalog No. 22—an attractive illustrated catalog describing in detail the Shamrock shipping containers and the new canvas trucks for textile use. Meese, Inc., Madison, Ind.

11. Whitinsville Rings—16 page illustrated booklet describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

23. Practice of Rayon Sizing in American Mills. Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein, Hall & Co., Inc., 235 Madison Ave., New York, N. Y.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500, Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50 page buyers' guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on evener, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in Textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

—106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication—Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

CONTINUED ON PAGE 108

An Old-Timer Says—

(Continued from page 95)

that many of us seem to forget—that the other fellow is paying us, and it is up to us to please him. I don't mean by that that we must be a "yes" man, or have to agree with an employer on every statement that he makes, or suggestion that he makes, or every order he gives. It is your duty as an employee, when an order is given, to explain to your superior the practical side of that order. If he tells you to set a machine one way, and you know that is going to cause bad work, then you should explain it to your overseer or superintendent. However, after giving this explanation, if he insists that he wants the machine set that way, then it is up to you to not only carry out his orders in setting the machines that way, but *make* them run *successfully* that way if possible.

Don't lose sight of the fact that it is up to you to carry out orders, just as long as you are drawing weekly wages, or a monthly salary from someone else.

If you had taken the right attitude toward your former employer and your former associates, it would have been possible for you to, in time, not only win their confidence, but win their friendship and they would have been pulling *with* you instead of pulling against you.

I don't know of any higher achievement that a man can perform, than to be able to make a friend out of an enemy. I am not only asking you to believe what I say, but I can back this statement up with practical demonstrations and relate actual occurrences, just like I have referred to the young lady who is sitting here before me taking this dictation. In other words, I could not make this remark before her if she knew that it was a lie.

One of the biggest reasons for men losing their temper is on account of jealousy. Most all men are jealous of more successful men, and the sad fact is, so many of us don't realize that we are jealous. It is this feeling of jealousy that causes us so many times to lose our temper and say things to our employers and associates that, five minutes after, we would give most anything to be able to recall.

Again, I have found one of the most common reasons for overseers and superintendents losing their temper, was that they had possibly been on the job for several years, and having been more or less successful, their "bump" of egotism has grown just a little bit too big and they begin to feel like that no one else can run the job.

I have actually known of instances where a superintendent would not only get mad, but show his temper when the president of the mill would want to go through the plant on an inspection tour, and I have known of other cases where the superintendent would actually tell a mill president, or treasurer, that if he didn't stay out of the mill, he could get another superintendent. And just why those same mill presidents tolerated men of this type, is beyond my explanation.

Let me repeat that as long as you are employed by someone else, as long as someone else is paying your your money, as long as someone else has the authority to stop your wages or stop your salary, then it is up to you to work for the best interest of that person.

Laying aside that more or less cold-blooded fact, I claim that no one can get as much satisfaction out of running any kind of position where they let their temper predominate, as they can if they will work on the human nature side of the other fellow, and not only win him over as a confidant, but as a friend. There are very few people in the world who are not subject to good treatment.

For example, if someone sends you a Christmas card, you then feel obligated to send him one. If someone does you a good turn, you then feel obligated to do him a good turn. This seems to be an animal trait that not only applies to human beings, but to the lower animals. When I was a boy, I remember standing around my father's barn and seeing a cow begin to lick another cow, and in a few minutes that cow would be trying to lick the other one.

Just apply some of these common sense human nature elements to your work, which you think is complicated, and see what a wonderful response you will get, not only from those who are working with you, but from those for whom you are working.

Jesse, I'm not much on quoting poetry, but there is a thought in a verse by Ella Wheeler Wilcox that fits in so well with the argument I am putting up to you, I want to give you that thought:

> "We build our future thought by thought,
> For good or bad we know it not,
> Yet, so the universe is wrought.
> Thought is but another name for fate;
> Choose then thy destiny and wait,
> For *love* brings love and *hate* brings hate."

Please note the last line: 'For *love* brings love and *hate* brings hate.'

Favor most people and they will favor you. Play square with most people and they will play square with you. When you find out a man hates you, instead of hating him back, like your temper wants you to do, try treating him like one gentleman should treat another; if you have the opportunity, do him a good turn. Instead of letting your temper direct you, use your own best judgment; act the way toward him that your best judgment directs you and you will finally begin to realize your best judgment *can make a friend out of an enemy.*

Jesse, if you will promise to read this letter at least once a week for three weeks, and will then try to follow the advice that I have honestly tried to give you, and change your attitude accordingly—that is, when you feel yourself swelling up, and want to explode at something that an unprincipled foreman or superintendent has done to you, make an effort to see if you cannot find some way to show that man that you are co-operating with him—and if in a reasonable time you find just one human being that this attitude will not bring some response from, I want you to sit down and write me a full account, giving details.

Let me close by leaving only one message with you, even if you forget all the other things I have said in this long letter. Remember these nine words: *Don't let your temper cost you friends or money.*

OLD-TIMER

HELPFUL BOOKLETS FREE...

Continued from Page 106

109. **Some Properties of Starch and Dextrine**—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. **3-In-One Oil for Industrial Uses**—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. **Arcy**—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. **Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames**—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. **The World's Finest Sewing Machines**—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. **Goodyear Mechanical Rubber Goods Catalog**—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. **Engineered Packages for the Textile, Dry-Goods and Apparel Industries**—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. **Water Filters and Filtration Equipment**—Contains complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, New York.

124. **New Condensed Catalog on Ball Bearings and Power Transmission Units**—Combines all of the information and the industrial uses of radial ball bearings as well as the Fafnir power transmission line of wide inner ring and ball bearings. It gives complete information, interchangeability tables, dimensions, prices, etc. Fafnir Bearing Company, New Britain, Conn.

127. **Vim Short-Center Drive with Vim Tred Leather Belting**—16 page booklet outlining the special requirements of belts for short-center drives and the proper adjustment to give the highest efficiency. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

128. **Houghton's Hand Book for the Hosiery Dyer**—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

130. **Three New Textile Scouring Agents**—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

131. **Houghton's Leathers for the Textile Industry**—This valuable handbook contains 88 pages of data in the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. **STA-PUT Lubricants**—A brief description of an entirely new line of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. **The Pick Method of Weaver Wage Payment**—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. **Textile Detergents—Theory of the use of alkalis and control of pH**—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. **Textile Machinery—Improvements in Design and Methods of Lubrication.** A discussion of the problems of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141. **V-Belt Engineering Data Book**—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div., of Raybestos-Manhattan, Inc., Passaic, N. J.

143. **Winders and Winding**—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

147. **Let's "CAN" The Oil Can**—describing permanently sealed bearings for life, and for higher speeds and temperatures single seal ball bearings which have to be lubricated only from one to three years. New Departure Mfg. Co., Bristol, Conn.

150. **Engineering Data Book on Mechanical Rubber Goods**—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152. **Plant Checkup List**—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154. **Johnson Bronze Bulletin No. 340**—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. **Link-Belt Catalog 1274 on the P.I.V. Gear**—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

156. **Link-Belt Engineering Data Book No. 125**—showing features and giving engineering data on Link-Belt silent chain drives. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. **Grading Rules and Complete Specifications for Laying and Finishing Maple Floors**—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

163. **Roto-Koner**—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. **Johnson Rotary Pressure Joints**—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. **New Departure Speed Power Unit**—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

166. **Better Cones The World Over**—Bulletin describing the Universal No. 50 Winder for silk and rayon. Universal Winding Company, 95 South Street, Boston, Massachusetts.

168. **The Tube-Tex for Tubular Knit Goods**—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

169. **Tube-Tex High Speed Steamer and Finisher**—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayons, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are furnished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Streets, Philadelphia, Pa.

170. **Gates Textile Accessories**—showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. **Design of V-Belt Drives**—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. **Sonoco Products**—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C..

177. **New Advances in Loom Equipment**—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical information, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. **Improved Airplane Propeller Exhaust Fans and Ventilating Equipment**—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. **These Extra Cushion Cork Cots Offer Six New Advantages**—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about the method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 936 Arch St., Lancaster, Pa.

183. **Schieren-izing**—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, New York.

184. **Speed Control Handbook T-35**—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. **Dulux—The White Finish That Stays White**—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. **F-7 Feeder Bulletin** — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. **The Wildman Single Head Full-Fashioned Hosiery Machine**—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. **Form 374**—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

COTTON, Grant Bldg., Atlanta, Ga.

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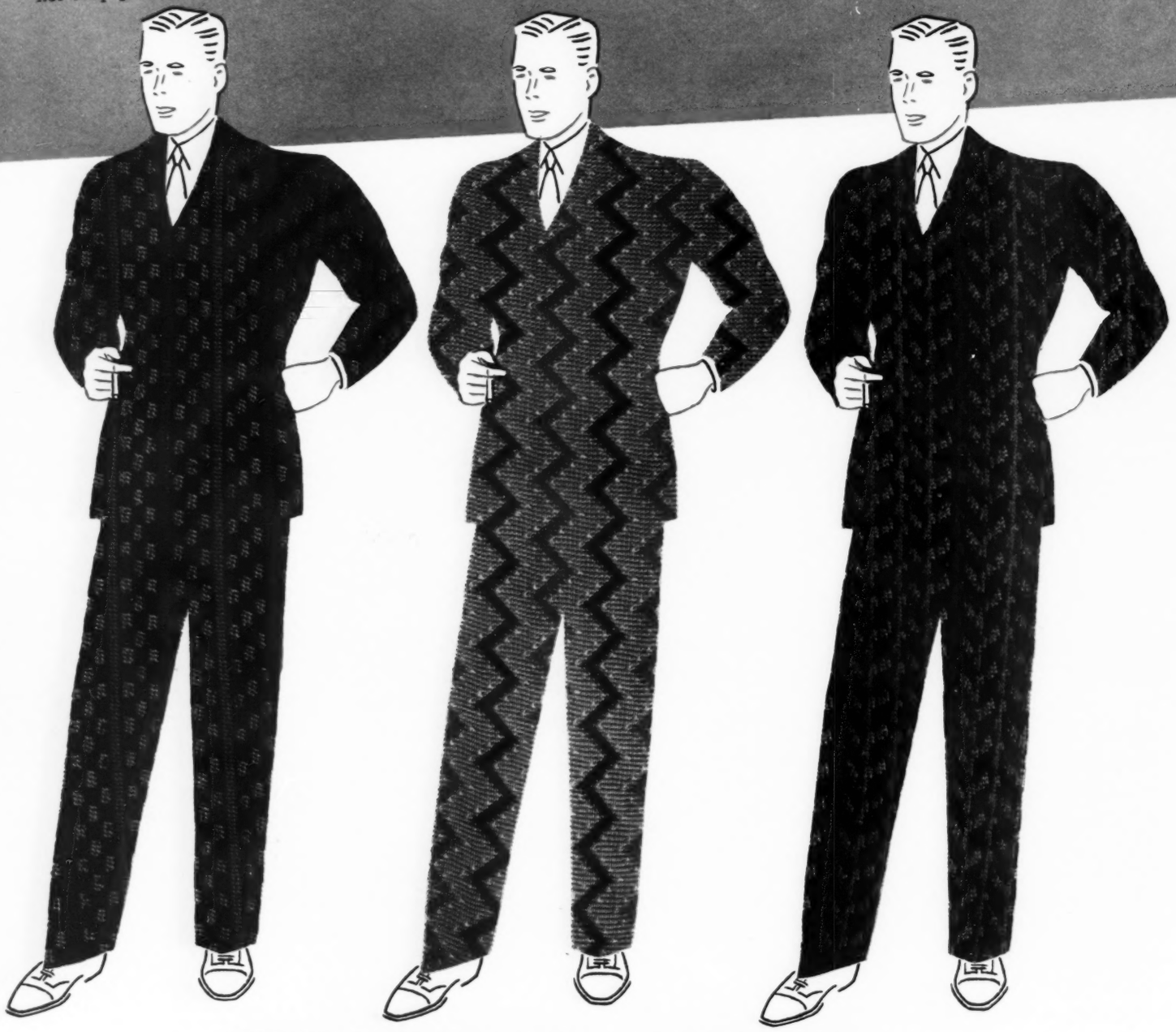

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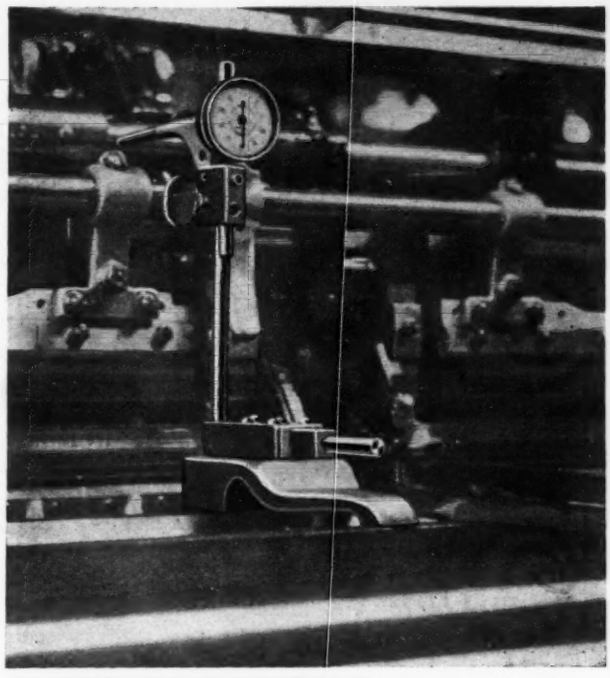
KNITTING SECTION

Micrometer Gauge for Setting Full-Fashioned Hosiery Machines

By I. N. Vint



The micrometer gauge for setting full-fashioned machines as described in this article . . . .

THE PRODUCTION of some types of full-fashioned hosiery requires a setting of the narrowing machine that differs from the settings required by other hosiery. To change these settings is not a simple task but is one that requires time, accuracy, and experience. In working with these settings, I designed and developed a micrometer gauge that consists of a No. 1126 gauge used as a base, and a small dial micrometer by which the settings may be read, and a few pieces of steel salvaged from the scrap pile.

This gauge is adjustable and may be moved in both the horizontal and vertical planes. When setting the top or front narrowing shaft the conventional front shaft gauge is used as a master gauge at the first arm. Then by using the micrometer gauge, the shaft may be moved forward or backward the proper distance by reading the setting in thousandths of an inch on the micrometer. When it is necessary to change the pitch of the narrowing machine, the gauge No. 1126 is used as a master gauge and then the micrometer gauge is set to the narrowing rods so that the readings in distance forward and backward may be read.

We recently installed several new machines and the finisher informed me that when he gauged the narrowing machine in the usual way, he started at the left end of the machine and the farther he advanced, the more sensitive his touch became; consequently the rods were set out farther at the right end of the machine than at the left. When he put the combs on, the farther he advanced to the right the more he had to file them to get them on the gauge. By using the micrometer gauge the rods were set exactly the same from one end to the other and the filing operation was almost eliminated.

This is not written to suggest a setting for the narrowing machine, but is to convey an easier and more accurate method of placing it in any desired position.

The first step in using this micrometer gauge is to set the regular front or top shaft gauge in the standard position which represents zero. Then open the cap screws on the front of the first two or three narrowing arms and set the front shaft to this standard gauge at these points. Using the micrometer gauge, adjust it in the vertical plane so the contact point on it will rest against the center of the front shaft, and adjust the gauge in the horizontal plane until the indicator turns to a vertical position, pointing either up or down as either of these positions is easier to read than a lateral one. Next turn the dial on the micrometer gauge until zero is directly under the indicator and move the gauge to the next arm, open the cap screw and adjust the shaft to bring the indicator on the dial to zero. Close the cap screw and repeat this step on all other arms on the narrowing machine.

This method requires little time and still less when the narrowing machine is already set to zero or any other recorded position because all that is necessary then is to take the micrometer gauge to that machine and set it. After this the dial may be moved the required distance, forward or backward, to the correct new setting.

The next operation is to set the narrowing rods to obtain the pitch desired. To do this, the No. 1126 gauge is set and pinned in position as a master gauge. Then open the set screws on the narrowing rod brackets over two or three heads and swing the brackets until the narrowing points are on the master gauge. Set the micrometer gauge to the narrow-

HERE'S THE "BUY-WORD"

FOR WIDE-AWAKE RETAILERS

-play it up and win new customers for your line

CHAIN STORES . . . co-operatives . . . independents —small and large—all are swinging to hosiery made of Spun-lo, the long life rayon yarn. One thing explains it . . . faster sales. In 1936 there was a 56% increase in sales of hosiery marked with the Spun-lo transfer.

That sales success is your opportunity. Make Spun-lo an important part of your line and ride along with public demand. You'll find it better yarn . . . you'll make better hosiery with it. For years of tireless experimenting and testing have gone into Spun-lo. It is softer, yet uniformly stronger . . . with the kind of flexibility that means better fit, more comfort, longer wear.

CHECK Spun-lo YARN on these three VITAL POINTS

1. *Standardized* . . . for easier handling on machines
2. *Standardized* . . . to dye evenly
3. *Advertised* . . . to sell quickly

Spun-lo

RAYON YARN MAKES BETTER STOCKINGS

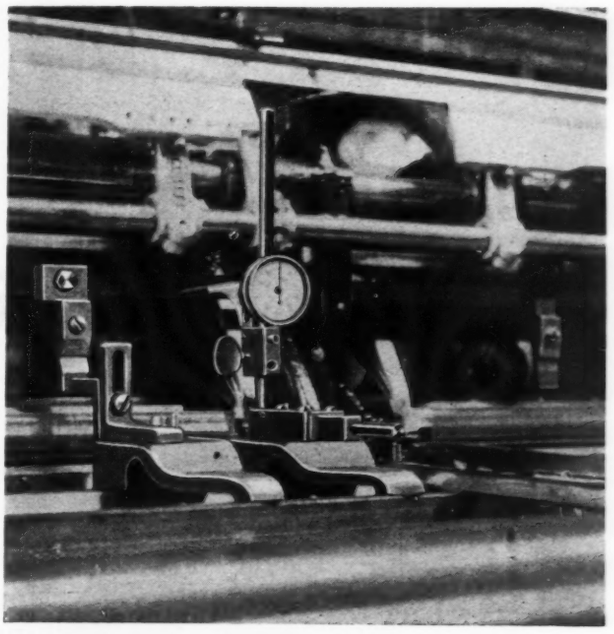
INDUSTRIAL RAYON CORPORATION, CLEVELAND, OHIO

ing rods on these heads, adjust it so the indicator points to zero and proceed to adjust all of the brackets to this setting. When the narrowing rods have been set with this gauge, which reads to the thousandth inch, it is not necessary to go over them a second time to ascertain where they are sticking.

There are times when fixers have machines that are producing good fabric but that are giving narrowing trouble because the needles and the narrowing points are not coming together hard enough. To correct this, the fixer gives a little more press to make them come together harder and at the same time causes the needles to work harder against the presser edge on the sinker head. After so long this extra pressure on the needles and the presser edge causes imperfections in the fabric that resemble sinker lines. The proper way to correct this trouble is to open the cap screws on the narrowing machine arms and move the narrowing machine 5 or 10/1000 inch closer to the needles. This is more satisfactory than moving the needles closer to the narrowing points *and the presser edge.* The reason for these maladjustments is that the fixer shuns the task of moving the narrowing machine such a small distance with a gauge that is cumbersome.

The micrometer gauge solves this problem and also eliminates the gauge which is used to set the narrowing rods from the back narrowing shaft and which is difficult to use where 3-carrier alternating attachments, reinforced selvage attachments, and splicing blocks are in the way.

This micrometer gauge facilitates the keeping of an accurate record of the narrowing machine setting. If the knitter drops the narrowing machine and jars it out of position, it is easily and quickly set again. It is possible to compare the narrowing machine setting with the menders produced by it. Finally, it allows the fixer to rely upon his sense of sight instead of his sense of touch. Which is the most accurate?



Showing another position of the micrometer gauge. The regular gauge is shown at the left . . . .

Rhythm Lessens Fatigue

When soldiers are marching to the rhythm of band music, less fatigue is felt than when they are merely walking along without cadence, says Dean F. W. Shumard of the National School of Time Study, Norwalk, Conn. Laborers that sing or chant during their working movements, he continues, are not always manifesting the feeling of pleasure in their endeavors, but they are creating a rhythm for their movements which makes their work easier.

One reason for the efficacy of this rhythm in lessening fatigue is that it keeps the mind of the worker away from the contemplation of his tiredness. Everyone knows from experience that a person not conscious of his growing fatigue is less tired at the end of the day than one whose introspection constantly centers on the likely effects of the work to his efficiency. Therefore, points out Dean Shumard, one of the chief aims of time study as applied to industry is to make the manual operations of each worker as regular and rhythmic as possible. Even if a slight slowing-down of a particular operation is necessary in order to secure rhythm, the day's production is increased through the steady pace that the workman maintains.

Rapidity of motion is not necessarily more energy-consuming than slowness of movement. Usually those operations that lend themselves to rapid movements are of the light type of work, and the worker can quickly set a rhythmic yace for himself, thus saving considerable fatigue. On the other hand, slow tasks are often of the heavy type wherein rhythmic movements are nearly impossible and therefore these slow tasks are much more tiring than the faster but lighter ones. The matter of rhythm plays an important part in the work of the time-study engineer.

Talcott Appointed Factor for Ballard Silk Company

James Talcott, Inc., factors, New York City, have been appointed factors for the Ballard Silk Company, Inc., Binghamton, N. Y., manufacturers of rayons, and for Colcombet-Werk, Inc., New York City, distributors of silks and velvets.

Hosiery Shipments Reach New Peak

The National Association of Hosiery Manufacturers in its current *Statistical Bulletin* reported that shipments of hosiery, including all types, reached a new peak in the history of the industry in October, 1936, at a total of 12,234,846 dozen pairs. This figure brought the total shipments for the period from January through October of last year (1936) to 100,800,282 dozen pairs, an increase of 9.1 per cent over the 92,388,701 dozen pairs of hosiery shipped during the comparable period of the year before (1935). The *Bulletin* pointed out that if this rate of gain were maintained throughout the remaining months, total shipments might reach 122,000,000 dozen pairs. This figure would top the volume reached in 1929 by around 5,000,000 dozen pairs and would be more than 23,000,000 dozen pairs in excess of the low point reached in shipments during 1930. Furthermore, consumption of 122,000,000 dozen pairs of hosiery in 1936 would mean that the annual per capita consumption would reach the 1929 level of 11.5 pairs per person, as compared with a recent low point of 9.6 pairs reached in 1930.

Perfect Match Assured

Amazing but true . . . The New Wildman Single Head, Single Unit Machine . . . turns out a regular French Foot Stocking . . . Complete . . . perfectly matched Leg and Foot. Investigate this opportunity for production saving and product improvement.

Write for Descriptive Literature

WILDMAN MANUFACTURING COMPANY
Full Fashioned Division Norristown, Pa.

The New
WILDMAN SINGLE HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE

RIGGS Elastic Top Made at the Margate Mills

An array of slacks made with the Riggs elastic-top as manufactured at the Margate Hosiery Mill, Chattanooga, Tenn. . . . . .

THE INCEPTION of the Riggs elastic top for men's half-hose and children's anklets was conceived and brought about in an "Arabian Night" or "Alice in Wonderland" manner because the idea perfecting this top came to its inventor, C. A. Riggs, in the dead of night. So certain was Mr. Riggs that the sub-conscious working of his mind had discovered a means of producing a faultless elastic top that he got out of bed, went to the mill, set the machine in the manner he had suddenly hit upon, and produced the top upon which he had been working to perfect for years.

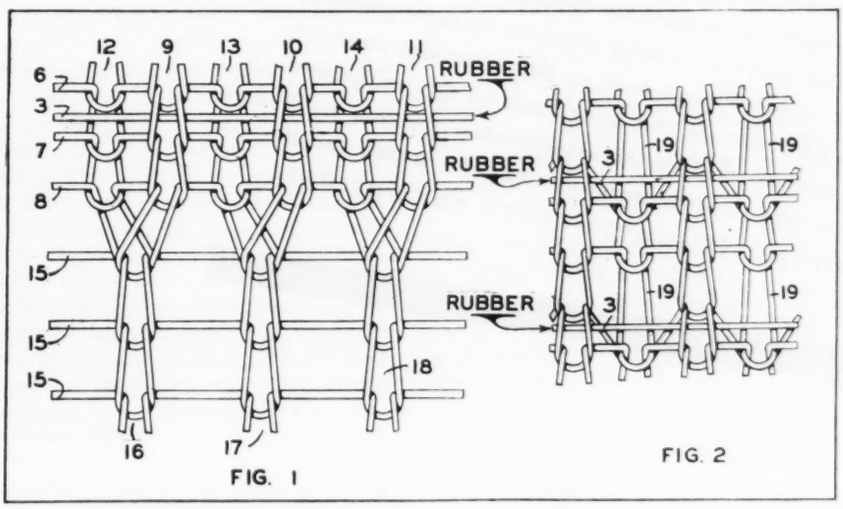
But we must not lay the invention of the Riggs elastic top to just a chance of hit and miss. (We must call the elastic top an invention as well as a process.) For several years previous to the night upon which the Riggs elastic top was born, Mr. Riggs had tried every conceivable way to set a machine so that garterless hose for men might be used. Elastic tops were prevalent on anklets for some years and next were crudely knitted on men's half-hose—but crude they were, looking ruffled and made with rubber. The first true-rib elastic-top hose were made on single-feed machines by putting in two courses of rubber, skipping several spaces and putting in two more courses of rubber. Knots were left in the back of the tops and knitters were not proud of their display of elastic-top half-hose—but the first car was an object of ridicule also—notwithstanding their being crude, the makers of elastic-top hose had made a definite step forward and credit must be given to those first pioneers who labored to give a man a hose that would stay up under its own power.

Riggs Granted Patent

At the time of application for patent on the Riggs elastic top, several other patents were being applied for at the same time. The Riggs patent was granted under two separate patents, No. 2,039,931 and No. 2,039,932. The Margate Hosiery Mill, Chattanooga, Tenn., of which Mr. Riggs is superintendent, manufactures these hose.

Elastic-top hose manufactured by the Riggs method has a *true rib* and gives an even distribution of rubber between every third course when made on the 3-feed machine. This elastic top may be manufactured on machines having 3 or more feeds, and the patent for the process covers machines of 3 feeds or *more*. Also manufactured by the Margate Hosiery Mill is a half-hose number with full length, having a cut in the elastic top which acts as a garter—joined to the hose.

The opinion of the executives of this company is that the future of half-hose is such that the length



Illustrating just how the rubber is distributed. This top may be manufactured on machines having three or more feeds . . . . . .

PROCTOR & SCHWARTZ

Again

TAKES THE LEAD!

Proctor & Schwartz, Inc., leaders in the building of drying machinery for over fifty-two years, are now introducing a new type of half-hose machine for two operators. This new dryer is designed and constructed to insure the highest quality results at a possible production of 52 dozen pairs per hour . . . and also to assure perfect ease of operation as well as the greatest comfort for the Boarder. In the next issue of this magazine there will be additional information on this truly remarkable Proctor equipment . . . so watch for it.

PROCTOR & SCHWARTZ • INC • PHILADELPHIA

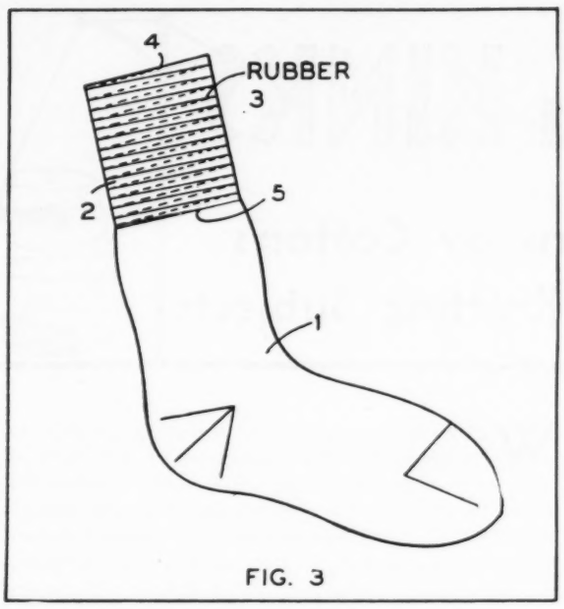


FIG. 3

This elastic-top hose has a true rib and gives an even distribution of rubber . . . . .

will be 10 inches, which is known as "slacks". To bolster this opinion, examples of the extreme brevity in underwear is quoted. When the Margate company was formed, the original purpose was the manufacture of children's anklets, but with the Riggs invention having been conceived in this plant, the production of children's anklets was surplanted by that of men's half-hose with the elastic tops. Production of anklets forms only a small part of the total output of the plant at the present. In fact about 85 per cent of the total production of the Margate company is on elastic-top goods made by the Riggs method, most of which are "slacks".

How Tops are Made

The Riggs elastic top is made on the large diameter machine, 5½ inches and 6½ inches, and the rib produced is the same on the inside as on the outside. The 3-feed machine or a machine of more than 3 feeds is essential in the manufacture of this top. The rubber is laid-in every third course. To manufacture these hose on single-feed machines, it is necessary to first convert them to 3- or more feed machines. If the 4-feed machine is used, the rubber is laid-in every fourth course.

The regular Lastex, furnished by the U. S. Rubber Company, is used, and over 200 pounds of Lastex are consumed per day. Some of the tops made go into hose manufactured by other mills who receive the Riggs tops and do their own transferring.

Run-Resistant Knitted Fabric Patent Granted

Elmer C. Lochhead, vice-president of the H. R. H. Silk Hosiery Mills, Moberly, Mo., has been granted a patent on a run-resistant knitted fabric. One of the claims reads in part: "A run-resistant knitted fabric having substantially the appearance of a plain knitted fabric, at least a portion of which comprises constructional repeats of substantial extent in the alternate wales only, draw stitches and floats in the following courses extending across said draw stitches, no more than one draw stitch in any course, and between any pair of courses containing draw stitches a plurality of plain courses."

General Electric Announces Motors of New Design

General Electric Company, Schenectady, N. Y., has released bulletins describing its motors of new design in riveted-frame squirrel-cage polyphase induction, ranging in frame sizes of from 1 to 15 horsepower running at 1,800 r.p.m. The new motors, available in a variety of electrical and mechanical modifications, incorporate improvements in stator-coil insulation, frame construction, and other design features. Co-ordination of design permits the different modifications of motors in the line to be used interchangeably for many types of power supplies and for various applications requiring open, sleeve- or ball-bearing, enclosed, enclosed fan-cooled, splash-proof, and vertical motors, etc. A new insulation system that is built from the inside out is employed for the stator-coil windings, which are of the random-wound type, with joints at the connections fused instead of soldered. Recently developed insulating materials and processes are utilized, eliminating the need for taping the end windings and producing an insulation assembly with high resistance to moisture and other common deleterious influences, such as mild acids, alkalis, oil, and abrasion.

A new riveted-frame construction and new end frames made of malleable iron, with integrally cast feet, contribute to the strength and rigidity of the motors, providing increased resistance to vibrating and shock loads. The bulletins describing these motors are well illustrated.

Tilles Heads Gotham Silk Hosiery Company

Roy E. Tilles, who has been vice-president of Gotham Silk Hosiery Company, New York City, since its inception, has been made president of the company, succeeding Solon E. Summerfield, who has become chairman of the board of the company, a newly-created position. This new position was decided upon at the last meeting of the directors. Francis J. Moeckel, who has been secretary of Gotham for a number of years, succeeded Mr. Tilles as vice-president. Samuel B. Cumming, controller, has been made treasurer and Abraham Spiro secretary.

Laurens, S. C., to Get New Hosiery Plant

The Rogers Hosiery Mill, Philadelphia, is to open a large hosiery mill in Laurens, S. C., sometime this month, according to L. C. Barksdale, secretary of the Laurens Chamber of Commerce. It is said that the old plant of the silk mill will be used and plans call for an expenditure of $15,000. Three hundred persons will be given employment.

Bulletin by Kennedy Company

The Kennedy Valve Manufacturing Company, Elmira, N. Y., has released a bulletin describing a new line of fully bronze-bushed standard iron-body wedge gate valves. This folder contains large sectional views of the valves, with references to 33 outstanding features of design, and describes them in detail. A fracture through the valve metal is illustrated to show the exceptionally dense structure, which is 50 per cent stronger than ordinary cast-iron. Other views illustrate the ease of connecting, operating, re-packing, lubricating, and dis-assembling.

Dial Jacks Cause Loose Lines in Hosiery

Yes! The dial jacks go off center

EDITOR COTTON:

This is in answer to "CONTRIBUTOR NO. 6585" who asks the question on page 137 of the November issue of COTTON concerning loose lines appearing in hosiery made on the S & W 280-needle, 3½-inch Model K machine, and who wishes to know if the dial jacks have anything to do with loose lines.

This contributor's trouble covers a large area and unless I saw one of his hose it would be hard to name the exact cause, but I will give some of the reasons for loose lines and maybe one of them will aid him.

From his description, I believe the jack dial is causing most of the trouble. One of his fixers claims that the jack dials never go off center; I don't like to start an argument with the fixer but I would have liked to have had him with me for the past four months. We have just completed overhauling 62 S & W Model K knitters, 220-needle, 3¾-inch cylinder, and with this coarse gauge we found about 35 per cent of them off center.

With his 280-needle, 3½-inch cylinder, the needles are much closer together than are ours which means that his dial jacks are closer also. He may line his needles and sinkers well and have a dial off center just a fraction; every now and then a jack will rub a needle a little as it runs between the needles. A few days of this rubbing will put the needles out of line again which will cause loose streaks or lines. Too much stress cannot be laid on the proper centering of jack dials because if they are not kept in good shape there will always be trouble; this is because the dial jacks work in two different places between the needles—the point where the jacks take the yarn and the point where they transfer the loop, so with a dial off center it cannot be expected that both of these places will match—resulting in broken or thrown loops as well as needles, sinkers and jacks being knocked out of line.

Other causes of these streaks are: Having tight and loose sinkers which result in tight and loose wales; tight and loose needles resulting in tight and loose stitches; too much space between the left stitch cam and raising cam; and inside sinker ring being worn in places.

CONTRIBUTOR NO. 6586

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Cause of Bad Inside Selvage on 7-Thread Full-Fashioned

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR NO. 6492" (page 147, May COTTON) as to the cause of the bad inside selvage on the foot of his 7-thread, 42-gauge cotton foot full-fashioned number, I would say that the two principal causes are the catch bar being too far forward and there being too much press on the needles. There is also a possibility that the take-up rings are too light for the 50s/2 mercerized yarn. It is advisable to use split dividers to cover the sole on this type stocking.

Character and Condition of the Yarn

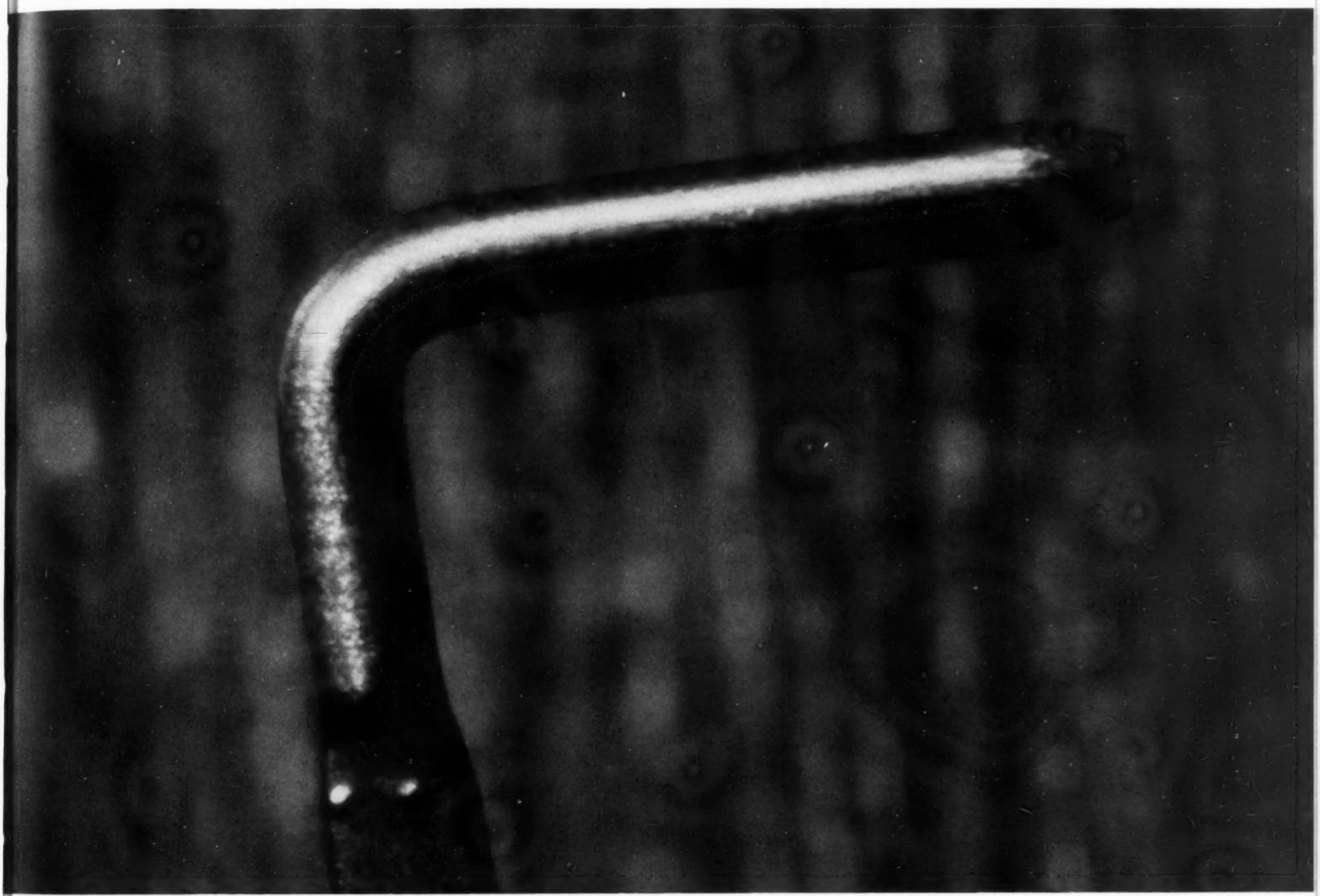
This trouble could be in the character and condition of the yarn. If the yarn has a tendency to kink it will help to condition the yarn until it is softer. Also, if the mill is equipped with humidity controls, it will help to increase the relative humidity.

We assume that the mechanic in charge of the machines is familiar with the various adjustments for correcting a bad inside selvage and as this style is one of the more simple to make, we believe there is some local defect that should be corrected.

CONTRIBUTOR NO. 6519

(Another discussion of this problem appeared on page 118 of the June issue.—THE EDITOR.)

uniformly bent BUTTS

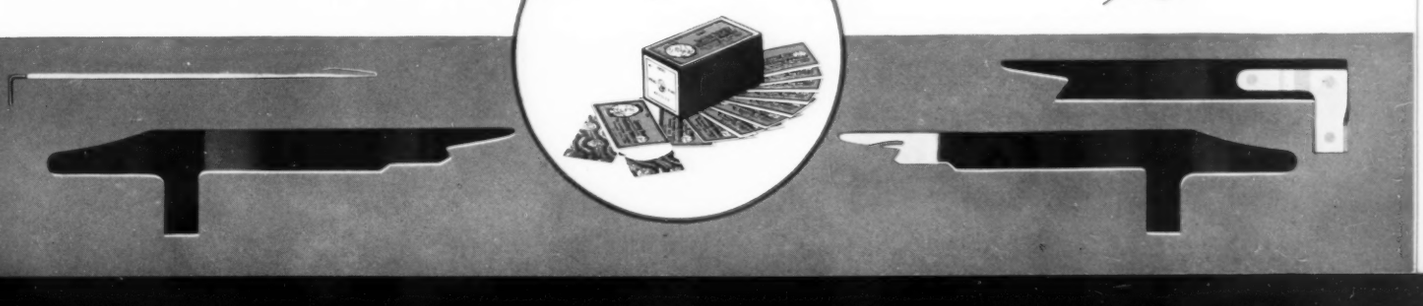


The angle of the butt determines how well the needle "sets" in the hole and keeps its alignment. At Torrington there's no guess work in determining the accuracy of this important detail.

Machines guarantee that every butt is bent to a uniform angle. As a result Torringtons set snugly, keep in line and do not vary in length. It is one of the many reasons why machine-made Torringtons do finer, smoother knitting.

Torrington sinkers, dividers and split dividers are also *machine-made* with the same exacting attention to details.

TORRINGTON *Needles and Sinkers*



KNITTING JOBS THAT CALL FOR GOOD NEEDLES

To knit good looking, long wearing, fast selling articles like these you need uniform, smoothly finished, finely tempered needles. Torringtons are that — and good knitters know it well. That's why Torringtons are used in so many of the world's most successful knitting mills.

TORRINGTON *Latch* **NEEDLES**

THE TORRINGTON COMPANY — TORRINGTON, CONN., U.S.A.

The Torrington Company, 1640 Fairmount Ave., Phila., Pa.
The Torrington Co., Inc., 200 Fifth Ave., New York, N. Y.
The Torrington Company, 538 South Wells St., Chicago, Ill.
The Torrington Company, Guilford Bldg., Greensboro, N.C.

The S. M. Supplies Co., 210 South Street, Boston, Mass.
Los Fabricantes Unidos, 964 Calle Belgrano, Buenos Aires
Factories at: Torrington, Conn.; Coventry, England; Upper Bedford, Quebec; Aachen, Germany.

Leg and Foot Matching

EDITOR COTTON:

We believe the problem of leg and foot matching is the major factor in the knitting of full-fashioned hosiery today, especially so, since the inception of three-carrier work. We have wrestled with this problem continually and in doing so have discovered and established certain systems that we know to be worth while. As yet, we have not eliminated bad matching entirely.

Two Leggers to One Footer

We pair our machines by having two leggers to one footer. The leggers run a double shift which gives us twelve separate units in our plant. There is a storage rack where the legs are kept, so arranged that when the work is collected from No. 1 and No. 2 legger, it is always placed in the same section of the rack. Then the other number leggers' work is placed in a section marked for them. The footers have the same arrangement. This system assures that all legs coming from No. 1 and No. 2 legger are footed by No. 1 footer and the legs from No. 23 and No. 24 legger are footed by No. 12 footer, etc.

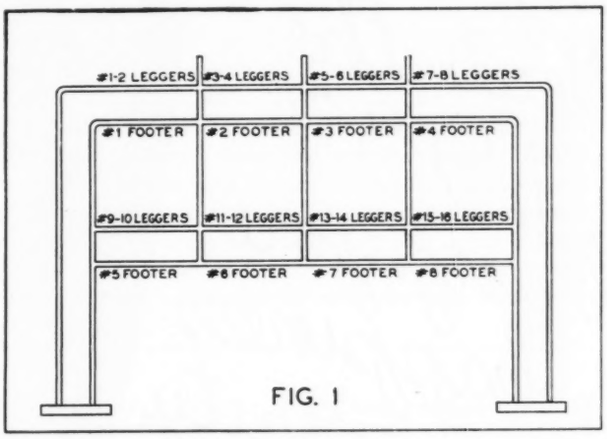


FIG. 1

Fig. 1 illustrates our method for storage in the rack. This method considerably cuts the chances of bad matching by having one footer always footing work from the same two leggers instead of footing legs from all the plant. It is also a great aid in keeping the styles separate. When we change to a new style or to new silk, we always change the same two leggers together, if possible, and then change the corresponding footer.

We keep each lot of silk separate by tinting it with different colors; this assures us that no silk from two different lots will get into the same stocking.

We also have had the dial on the adjusting screws of the slacker, known in the trade as the star, marked as shown in Fig. 2. This enables us to keep an accurate check on whether this star has been tampered with or moved. The adjusting screw or star controls the courses per inch in the fabric—hence it is an important factor in matching the fabric of the leg and foot. If this screw should be moved by a fixer or course counter for any reason whatever, he has instructions to date this change and place on a card the exact nick in the star on which it is set. This card is placed on the machine. By checking this record, one can readily see if the machine is knitting stitches per inch properly. If the card shows a continual changing of the adjusting screw, we know

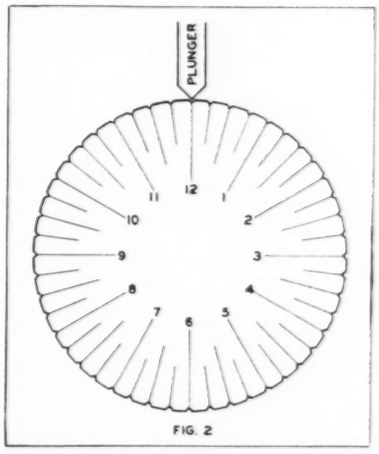


FIG. 2

immediately that something is wrong with the regulating apparatus and we can rectify it. Often the rollers or trucks wear to soft spots and if they are not inspected the machine will continually knit tighter work. The record chart will show this defect clearly.

Inspection

We check our matching of leg and foot by taking several dozen of one footer's work after it has been looped and seamed, and pulling the stockings over an examining form. We find that we can see the fabric better and also, the leg and foot are thoroughly dried. This helps because looking at a dry leg and a wet foot often gives the wrong appearance of stitch. Also, the inspection may be performed without interruption from some knitter or someone else. We keep a record of the day the matching is checked, how it looked, and whether there was a change or not.

Fig. 3 shows a detailed illustration of the record

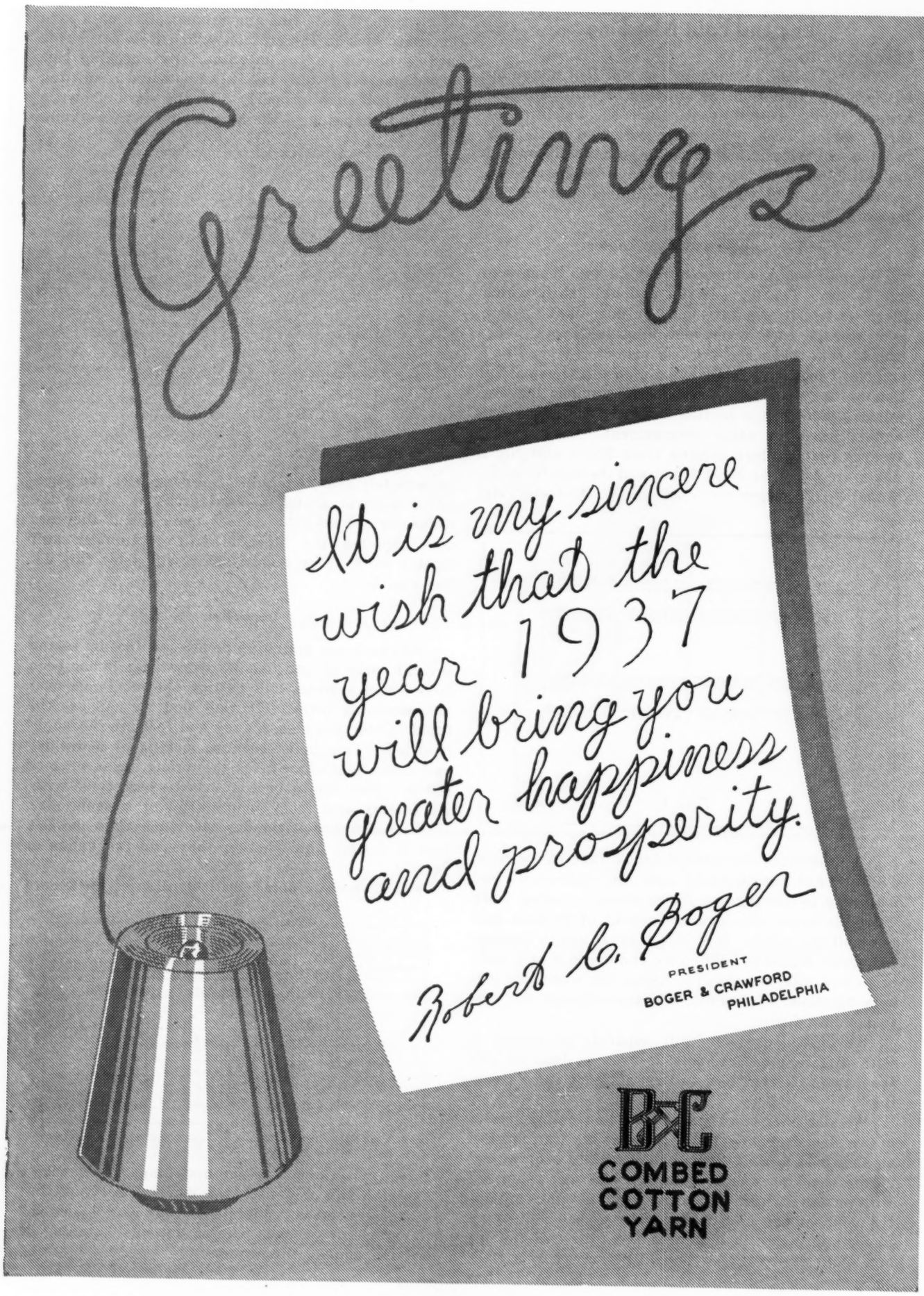
FOOTER MATCH RECORD

MACHINES	DATE	HOW FOUND	NICKS MOVED	DATE	HOW FOUND	NICKS MOVED	DATE	HOW FOUND	NICKS MOVED
1	6/26	Loose	2	7/17	OK.		8/2	tight	1
2				7/17	OK		8/3	OK	
3	6/26	tight	1				8/5	OK	
4	6/27	tight	1	7/19	tight	1	8/10	OK	
5							8/10	Loose	1
6				7/19	Loose	2			
7	6/26	OK		7/20	OK				
8	6/28	OK		7/20	tight	1	8/12	OK	
9									

FIG. 3

we keep when checking the matchings. Some people may think this is a little too much detail work but we can assure the readers that they can reduce the percentage of seconds caused by mis-matching if they will employ this system.

CONTRIBUTOR No. 6545


Greetings
It is my sincere wish that the year 1937 will bring you greater happiness and prosperity.
Robert C. Boger
PRESIDENT
BOGER & CRAWFORD
PHILADELPHIA
B&C
COMBED
COTTON
YARN

A "Kink" on the Picot Attachment

EDITOR COTTON:

Here is a "kink" that is a practical idea to pass to someone who wants to get the most from their machines. This idea concerns the Model K, Scott & Williams, 300-needle machine. It is an attachment that applies to picot edge arrangement, and is controlled by the motion of the main drum; it allows but one picot on the edge or top of the hem.

The attachment that I have rigged up is controlled by the chain, thereby making it possible to control the picot drum at any part of the hem or leg.

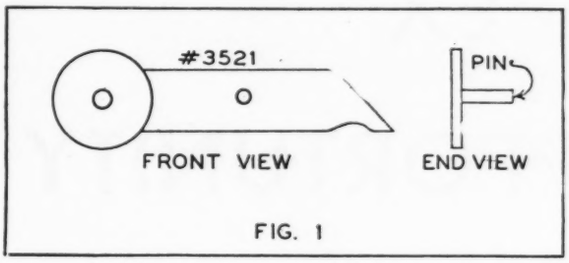


FIG. 1

If the picot attachment is already on the machine, it is necessary first to drill and tap a 10/32-inch screw hole in pawl No. 3521 and make a pin and screw in the pawl as shown in Fig. 1. The pin should be about 1-inch long and should extend on the outside of the pawl. The hole in the pawl should be drilled about 1-inch from the front of the pawl. When this is done, take the picot auxiliary drum, No. 100058, and divide it into five equal parts, counting the hole that is already drilled, and drill and tap and place five cams No. 45284 on the drum. Next take the control cams, No. 44831, off and divide the drum into ten equal parts, counting the two holes

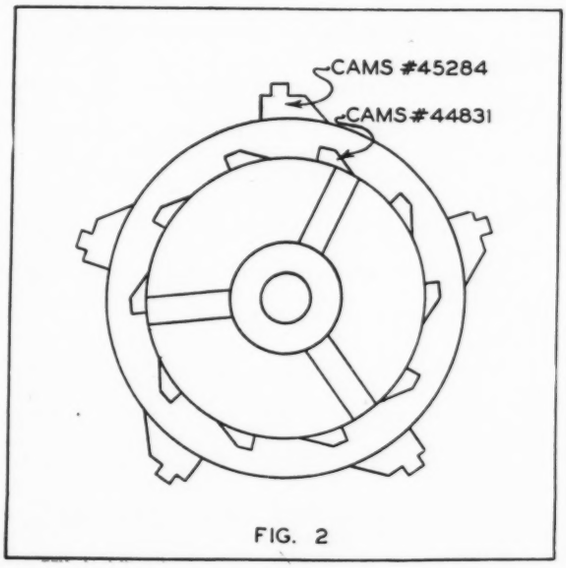


FIG. 2

that are already there, and drill and tap and place ten cams, No. 44831, on the drum as shown in Fig. 2. The cam No. 3520 should be removed from inside the main drum.

The pawl control is made to fit on the belt shifter shaft No. 6502. About one inch or less of the shaft extends over the collar on the left end; the collar should be removed and the auxiliary control placed on the shaft. The collar may then be replaced.

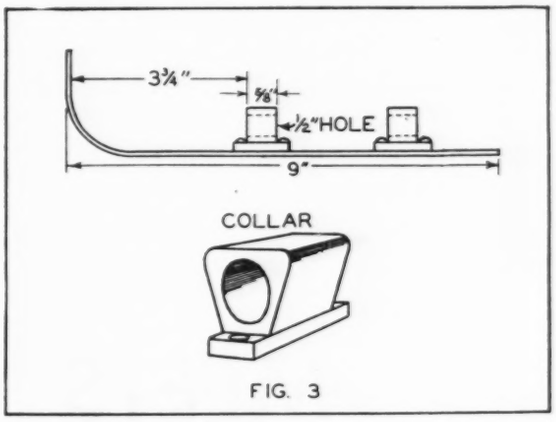


FIG. 3

The auxiliary control is made of two cast iron collars (as shown in Fig. 3) and the rest of the control is made of flat iron, 3/16 by 1-inch wide. The sketches in Fig. 3 show this part of the mechanism.

A pin should be screwed in the frame of the machine and regulated to act as a stop when the control is off the control link. The pawl control is operated with a projection on the left side of the link.

When this device is employed, a picot may be made wherever a link is placed. If a plain hem is desired, it is only necessary to throw the auxiliary pawl No. 3521 out of place.

CONTRIBUTOR No. 6542

Large Needle Cuts Stitches in Hose

EDITOR COTTON:

On page 115 of the July issue of COTTON, "CONTRIBUTOR No. 6489" states that he is having trouble with the needles cutting the stitches in his hose when sewed on Merrow machines. He also states that he believes the dye in the yarn has something to do with the stitches being cut.

Too Large a Needle Causes Trouble

We think that "CONTRIBUTOR No. 6489" is using too large a needle. It has often been found in sewing on Merrow machines that the 3 D needle, which is usually used, does not always work satisfactorily, especially when the threads are large. We have found that the larger needles cut into the threads that are sewn in just ahead. Sometimes this happens on one color and sometimes on another, without any regularity.

We suggest that "CONTRIBUTOR No. 6489" try a 2 D or even a 1 D needle and see if his trouble doesn't disappear. We are, of course, assuming that his threads or yarns are all right. If they are not, then he must correct this defect before starting to sew.

CONTRIBUTOR No. 6576

APEX
MEETS OPPORTUNITY
WITH MODERN MACHINES

"We must keep our machinery up-to-date," said William Meyer, of the Apex Hosiery Company.

"We cannot afford to waste time trying to squeeze a profit out of obsolete equipment."

Thus was inaugurated one of the most aggressive policies of replacement known to industry.

For twenty-five years, Apex has carried on this policy of replacement . . . relentlessly . . . through good times and bad times.

While other manufacturers were sacrificing their mechanical plants on the altar of retrenchment, Apex was investing hundreds of thousands of dollars — keeping their machinery up-to-date.

That is the Apex-policy.

Like many another successful hosiery manufacturer, William Meyer has standardized Apex production on READING Full-Fashioned Knitting Machines.

Fifty-one new high-production READING Machines were installed in the Apex plant between April, 1935, and April, 1936.

Within the past few weeks, the Apex Hosiery Company has purchased fifty-one additional 45-gauge READING Machines.

"Now," said Mr. Meyer, "we are in a position to give our customers even bigger values in Apex stockings.

"If we are continually to improve our competitive position, we know that we must keep our machinery up-to-date.

"We cannot afford to waste time trying to squeeze a profit out of obsolete equipment."

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The new Royersford Standard Hand-Straightened Needle is a product of the most exacting series of tests ever devised for the control of production in needle manufacture. Because hand-straightening operations are "standard" and not "special" jobs, we are able to give you this complete finishing at the lowest price you ever paid for anything approaching this high standard of performance. Write us for samples.

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ROYERSFORD NEEDLES

More Discussion on Needle Consumption on Full-Fashioned Hosiery

EDITOR COTTON:

On page 97 of the January, 1936, issue, "CONTRIBUTOR NO. 6441" would like to see some discussion on needle consumption on 42-gauge full-fashioned machines, making service weight hose. He states that he has recently changed from 3- and 4-thread to 7-thread.

I have found from experience that when one changes from chiffon to service weight stockings that for some weeks the needle breakage is greater than it should be due to the fact that adjustments must be made and in most cases the carriers are changed around and many times unused carriers are used for making service weight hosiery. Until all carriers are set properly to prevent breakage of needles, and cam and roller adjustments are made to prevent needle breakage, an increase in needle consumption is certain to occur when a change is made from chiffon to service weight.

The needle breakage on service weight, however, is always greater than on chiffons, and the amount depends a great deal on the twist of the silk, the courses per inch and the material used in the heel for making the cotton heel.

We have at present several 20-section long needle type 42-gauge machines making a service weight stocking of a construction similar to that listed by your contributor. In looking over the needle consumption on these leggers for a period of time I find that the needle breakage averages between 40 and 50 needles per week per legging machine operator. Our machines, however, are quite old and we naturally figure that the breakage would be greater than on machines of a newer type. We do not have 24 section 42-gauge machines of the high speed type and so cannot give figures on this type of work.

The contributor is also interested in having the views of some of your readers as to the consumption of needles on single-carrier and 3-carrier equipment, comparatively speaking.

In the matter of needle breakage on our 3-carrier machines compared with the same style made on single-carrier machines, we find that our needle breakage is on an average about 20 per cent higher on the 3-carrier work. Our survey as to the cause and also with the idea of reducing the needle breakage shows us that the general increase is due to press-offs and the thread running into the needles after a stocking has pressed off. On a single-carrier machine, when an end breaks, the stocking presses off and leaves the needle bar clear of fabric or threads. On a 3-carrier machine, when an end breaks, the stocking presses off, but the other two carriers do not have broken ends and these ends continue to run into the needles. We find on an average that these ends do not break needles but the needle breakage is caused by the knitter removing the threads from the needles. We also have an increase in needle breakage at the selvage and must constantly watch the frictions to prevent rebounding at the selvage.

The matter of needle breakage of course varies with every mill and it is a problem for each mill to work out. I find, however, that to reduce the breakage the first thing necessary is to keep an accurate record of the amount of needles consumed by each operator. We have an individual card system on which we record not only the needles given to each operator but also the welt hooks, sinkers, narrowing points, etc. This record is checked over every week and when we find an operator using too many needles or other parts we try to determine the cause. These cards are designed to last three months so we can tell whether or not an excessive breakage has been reduced.

Our experience has taught us that many needles are broken or thrown away before they are put into a machine because of carelessness and indifference on the part of the knitter. By keeping an accurate record of the needles given out, we make the knitter realize that a check is being made at all times on his needle consumption and he will be more careful with the new needles that are given to him and will see that they are all used to replace broken needles.

Whenever there is excessive breakage of needles, there is a cause, and I can only say to a man asking about this that the only way to reduce the consumption of needles, if he feels that he has an excessive breakage since making service weight stockings, is to keep a record of the needles used by each operator, then check up the causes for such breakage, and no doubt he will find that by eliminating the major causes, the consumption will be greatly reduced.

CONTRIBUTOR NO. 6491

Percentage of Re-Seamers on 3— and 4—Thread Full-Fashioned

EDITOR COTTON:

One of your contributors recently asked for the experience of different mills as to the percentage of re-seamers on 3-and 4-thread full-fashioned goods.

I do not know just what he has in mind. A re-seamer in our plant on 3- and 4-thread 48-gauge goods represents a stocking that has been improperly seamed in any way, such as too heavy a seam, mismatched welt edges, high spliced heel, narrowing marks, as well as broken or dropped stitches in the seaming seam. On this basis our re-seamers run a little higher than .045 which is the figure he gave as his.

We would agree that this seems higher than necessary, but taking everything into consideration, we feel that it is a very satisfactory minimum, as a good many of our re-seamers are sent back on a basis of penalizing the operator rather than accepting work of other than the high standard which we set for this department. It is not a question with us of trying to keep re-seaming figures as *low* as possible but rather to keep our standard of seaming as *high* as possible. We admit the possibility of doing every stocking right, but such a condition drifts into remoteness rather than practical achievement, and we allow our operators to correct their mistakes by raveling out the back seam and doing the job over.

CONTRIBUTOR NO. 6533

THE "FASTLOCK" PIONEERED THE KNEE LENGTH

The ultimate in fine finished knee lengths is the fruit of the pioneer work of the Willcox & Gibbs Sewing Machine Company in the development and introduction of the Fastlock Machine. Three needles and perfect interlocking of top and bottom threads guarantee the ideal union (rip and ravel proof) of elastic and stocking. Quality of work, speed and ease of operation are but a few of Fastlock production advantages. The well finished knee length is the product of the Fastlock. May we demonstrate to you the advantages of the Fastlock method on your knee lengths?

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THE KNIT GOODS MARKETS . .

Exceptionally Active Demand for All Lines of Knit Goods. Prices Advancing and Early Deliveries Tight.

Philadelphia, December 16, 1936.

WITH COMMODITY and yarn prices staging one if the most rapid advances in so short a period in recent years and with wage increases being announced by many manufacturers, demand for hosiery, underwear and outerwear has been large and the industry as a whole is now solidly sold ahead for several months. The month has also been marked, aside from the large volume of business, by advances in prices which have been outstanding in hosiery and underwear. In the full-fashioned hosiery section of the market manufacturers are refusing to take orders far ahead, many confining present commitments to four weeks, but in the underwear trade manufacturers have generally booked their spring season's orders and are now concerned with the 1937 heavyweight season. Violent increases in wool have brought about a heavy demand for all types of outerwear and mills on this type merchandise are operating at peak rates and have about all the business they can handle.

Orders Continue in Full-Fashioned and Seamless

This December is one of the most unusual that the hosiery industry has experienced for many years. Instead of demand declining seasonally as we approach the end of the year, orders have been pouring in for seamless and full-fashioned goods with customers generally desiring to place larger orders and for a longer time ahead than manufacturers at present can see their way to accept. Buyers, and this includes jobbers, chains, as well as large retailers, after watching the rapid advances in commodities during recent weeks are rushing to cover before these can be reflected completely in the price of hosiery. At the same time, the urge to cover is coming because these buyers feel that higher overhead charges will be experienced by textile manufacturers in 1937, taking in not only costs under the Social Security Act, but in line with the times, they expect manufacturers of the group will be paying higher wages, all of which mean higher prices for goods.

The important change in raw silk prices over recent months, which have advanced to above the $2.00 mark from a low of around $1.40 last June, has finally been reflected in a general advance of 15 to 50 cents in full-fashioned hosiery prices, most of which went into effect December 1. Most hosiery manufacturers announced that the new prices would prevail during the month of December only. The advance got under way when Julius Kayser & Co. lifted its prices 15 cents to $6.00 on its two low-end numbers and quotations on some other numbers in its line as much as 25 cents per dozen. Interstate Hosiery Company lifted the price on one number, a 4-thread 42-gauge ringless style from $5.50 to $5.75 per dozen, with the revision good only until the end of the year.

Mock, Judson, Voehringer Company, made known increases in four numbers effective December 1 to the end of the year, price on its low-end 4-thread 42-gauge, 7-thread 42-gauge and a knee-length were raised $5.85 to $6.00 per dozen, while a mesh construction was advanced from $7.00 to $7.25. Price advances of 10 cents per dozen were made known by the Holeproof Hosiery Company, which stated that no orders would be accepted for shipment at these prices after December 31. Berkshire Knitting Mills, at present are quoting no prices for deliveries beyond the end of the year and contrary to reports in the trade, usually well informed factors assert the big company has taken no business for spring. It is expected to make known its spring lists before the end of the year.

Representatives of practically all of the large unbranded mills declare they are either refusing to sell for next year or accepting orders for January delivery in limited quantities only. The revised quotations were well received in the market because it was generally recognized that the advances made hardly cover the advance in raw silk during recent months, during which time no previous change in full-fashioned hosiery prices has been made. Coming before announcement of spring lists, these December revisions in prices are interpreted by some to mean that still higher prices will go into effect when the spring lines are released about January 1. The relatively small advance of 15 cents on 4-thread 42-gauge and 7-thread 42-gauge styles is believed to be insufficient to care for the higher cost of raw silk and other increased costs that manufacturers will have to meet as the new year gets under way.

Smaller Stocks on Hand

In commenting on the advance by manufacturers, several department store executives here declare that this would not interfere with the increased volume of hosiery that is going into consumption. They base this belief on the consumers willingness at present to pay higher prices for hosiery as evidenced by the increased movement of $1.00 and $1.15 goods. In the lowest retail bracket, retailers here continue to offer full-fashioned goods from 50 to 69 cents a pair, but it is not believed it will be possible to hold this price bracket unchanged for any considerable time ahead, in view of the well cleaned-up condition of stocks. As the year-end approaches full-fashioned manufacturers in this district report holding smaller stocks than for several years past and at the same time they are operating at capacity rates except in the few instances where labor disturbances prevent this.

The action of Julius Kayser & Co. and other leading manufacturers of branded full-fashioned hosiery of setting a $6.00 per dozen minimum price for the month of December precipitated two important questions in the market, the first was whether Gotham Silk Hosiery Company, which did not immediately join in the advance, would soon do so, and if it did not, to what extent it would raise quotations when it announces its spring line. The second question was to what extent those firms which did lift prices for December would further advance them for spring.

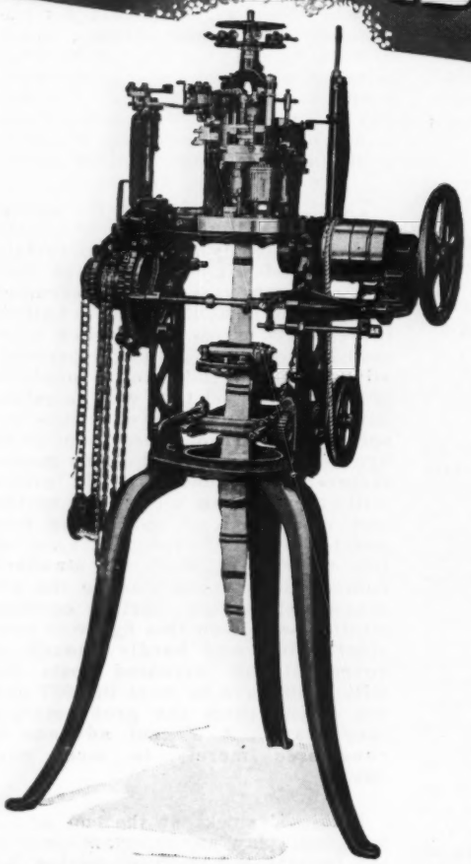
That branded prices in the spring list will be higher than they are now is generally accepted as certain in the trade, it being learned that one of the houses in the December advance movement would definitely increase its prices again when it issues its new list. Among representatives of the branded mills forecasts of the basic level that will be established for low-end constructions for spring range from the present $6.00 figure to $6.50. Most hosiery manufacturers feel that raw silk prices will enjoy a boom along with cotton and wool, at least during the first quarter of next year. In view of this a price of $6.25 for standard constructions appears to be the average opinion on spring opening minimums. Even this figure is considered low and hardly enough to cover all the increased costs the mills will have to meet in 1937 and not giving them the profit margin they want. A 25-cent advance is considered merely to meet new costs.

Retailers' stocks at the end of the year will play an important part in the January and February market, but in this, indications are definite already that the holiday demand for hosiery will be larger than for several years and retailers' stocks at the end of the year will no doubt reflect this situation, so that a general cleaning out of their present lines will lead to a replacing of stocks beginning in January. In fact, several full-fashioned mills that have agreed to accept such business report a large volume of business already in hand, which will guarantee them full-time operation during most of the first month of next year.

Decreased Dependence on Low-End Numbers

Branded houses, with relatively rigid construction standards and rather inelastic retail prices have a special problem in working their prices up, particularly on low-end numbers. Retailers will probably not complain about selling at 79 cents a pair stock-

Brinton Ribbers



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Fine hosiery that will wear longer . . . resist snags and spots, and retain its attractive dull, soft finish despite innumerable wearings and washings . . . is certain to find an enthusiastic reception and loyal support from the modern woman.

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THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

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ings bought at around $6.00 a dozen. But they would not be willing to consider this retail price if the cost to them went up to $6.25 a dozen or higher. A retail price of 85 cents is not considered a good one and the jump from 79 cents to 89 cents appears to some retailers to be steep. Through the last few years, branded hosiery companies have had to depend on their so-called low-end numbers for a substantial portion of their business, but this dependance has decreased with the improvement of the general economic situation. Numbers retailing at $1.00 and $1.15 have taken an increasing percentage of the total sales of branded full-fashioned hosiery this year, which trend will almost surely continue and should be an important factor in determining price policy on low-end branded lines.

That many wholesalers regard the increases in full-fashioned lines as reasonable is indicated by their restriction of purchases of sharply higher cotton goods in some instances and expanding their buying of full-fashioned stockings at prices which still show only slight advances from the year's low. These distributors do assert that manufacturers will be well advised if they mark prices up gradually and not attempt to jump them 50 cents at a time.

They realize, in addition to the advance in silk, that manufacturers are paying 6 cents a pound more for their mercerized yarns than early this year, that manufacturers will start paying higher taxes on January 1 and that the cost of practically all the other material they use is higher and probably going still higher. New NRA legislation is at least a possibility and if it becomes a certainty early next year, the present quickening in the market will be greatly accelerated. In many years, the market becomes overly optimistic in November and then has a letdown in January and February, but it seems unlikely that this is to occur this year, and in fact, there are sufficient indications at hand to assert at this time such a development is not to occur.

Half-Hose Not Too Bullish

Although the fancy half hose section of the market does not present quite as bullish appearance as in other branches of the business, buyers and sellers alike are alive to the fact that higher than current quotations on fancy half-hose are not improbable. Buying of fancy half-hose for spring by the wholesale trade, which was somewhat draggy when these lines were first opened, has increased materially during recent weeks. Because of the strong raw material situation and the excellent outlook for next spring, most manufacturers are not anxious to sell too much or too far ahead. They see combed and mercerized yarns advancing and they realize that rayon yarns will go up at least 3 cents a pound on January deliveries, as the result of elimination of the 5 per cent quantity discounts at the end of the year.

Some manufacturers of seamless silk knee-length hose have taken substantial orders for next spring but many of them are reluctant to accept additional business, as they have seen prices advance rapidly in the last few weeks and believe that by waiting better prices will be obtained. A considerable portion of the business now on their books was taken at prices which were considered very low at the time and the advance in raw silk during recent weeks makes them look especially cheap now. While some business has been taken on this merchandise for delivery through June, most sellers say they have not gone beyond March. Mills which have opened lines of wool and part-wool hosiery for the fall season of next year, have booked a surprisingly large volume of business. Salesmen who have gone on the road with lines of staples and fancies, report that initial orders have been much larger than a year ago and that many of their customers desire to cover before higher commodity and yarn prices are reflected in these goods.

Prices to Be Hiked

PHILADELPHIA.—Hosiery prices are bound to advance, William H. Gosch, president of the National Association of Hosiery Manufacturers, declared in an address delivered at the annual meeting of the Full-Fashioned Hosiery Association here December 15. He said this must come because of higher silk costs to manufacturers and also because of higher charges in other overhead, that manufacturers must bear, to say nothing of higher taxes. Some manufacturers present said full-fashioned hosiery would advance at least 75c a dozen by spring, and added this prediction would hold even though a minor recession in silk occurs in the meantime.

Constantine—"Hosiery Prices Must Go Up"

In a special message to the hosiery industry Earl Constantine, manager director of the National Association of Hosiery Manufacturers, says "hosiery prices must go up; not only is the decisive law of supply and demand working toward higher prices, but similarly, the prices of our raw materials, plus new taxes and other increased costs, make a price rise inevitable." Reviewing the changes in the raw material markets, notably the rise in raw silk this year, the effect of new taxes like those for Social Security, Mr. Constantine declares that it does not take the wisest prophet to point out that from all appearances there will be new Federal Legislation enacted within the coming months, one of the results of which is bound to be higher costs of operation.

He said in the face of all the facts, it is clear that a prudent manufacturer will be cautious with reference to quotations for future deliveries, particularly January and February deliveries. He suggested, "We are approaching a situation very similar to that which existed in 1932, when a manufacturer's sales tax threatened and again in 1933, when codes were rapidly approaching, as those previous times, we now recommend not only that prices be set at levels that fully cover costs, and permit reasonable profits thereon, but that protection be taken against unforseen taxes by the use of a fair and satisfactory conditional clause, which provides that any additional cost of producing the goods, which may result from Federal or State Legislation shall be added to the price of the goods billed."

Hosiery shipments for this year, if present gains are maintained, may reach an all-time high of 122,000,000 dozens, or nearly a dozen for each person in the country. This is the calculation of the National Association of Hosiery Manufacturers, reporting on business through the month of October. The estimated figure for this year would surpass that of the year 1929 by 5,000,000 dozens and would mean a comeback over the low of 1930 amounting to some 23,000,000 dozens. In the various types of hosiery, women's full-fashioned silk goods lead all other types. In 10 months so far this year, mills making full-fashioned have shipped out close to 30,000,000 dozens, a gain of well over a million dozens, compared with the same period in 1935. Next in popularity come the men's half hose, excluding wool goods, and next, the large selling children's anklets. Shipments of all types of hosiery through October show an increase of 9.1 per cent over the comparable 10 months of 1935.

Production of all types of hosiery in October was well below shipments, there being a reduction in stocks during the month. Stock turnover is being well maintained. During the 12-month period ending with October, stocks of all types of hosiery were turned over 6.2 times. Full-fashioned stocks were turned 6.6 times during this period, while seamless stocks were turned over 6.1 times.

These figures indicate that public demand for hosiery of practically all types has increased sharply during the last two years and is today at the highest point in the history of the industry. It is believed this will permit, and in fact, invites the industry to strengthen its price structure after a stretch of years, in which profits have been slim or entirely missing.

Different Shades

Ten distinctly different shades are portrayed in the advance hosiery card for spring 1937, released by the Textile Color Card Association to its members. Among the outstanding features of the new card is a radiant shade called Glamour, especially created to complement the regal colors shown in the coronation brochure issued by the association, as well as the royal colors for trade in the 1937 spring shoe and leather card. Significant trends for cruise, southern resort and summer wear, are reflected in three warm glowing tones, with smart "travel" names. Cubatan, Carib and Dalmatia. The last two represent the newest expressions of the copper influence in hosiery and are particularly chic with white, pastel tones and gay hues in the group of polo colors and swim-time colors, featured in the association's wool-

Apex Buys New Machines

PHILADELPHIA.—Purchase of 51 new 45-gauge full-fashioned hosiery knitting machines by the Apex Hosiery Company here from the Textile Machine Works, Reading, Pa., was announced. The order is one of the largest placed in years for new full-fashioned machines, involving approximately $500,000. It is considered significant in the trade as the equipment will be installed in the company's plant here to replace old equipment. The new machines consist of 34 leggers and 17 footers, 20-section. They are the standard "Reading" machine, high-speed, with ringless, picot and other modern attachments allowing for many style changes.

en and silk cards. For town wear, important color development is noted. For example, the increasing fashion favor for beige in costumes and accessories lends new importance to this range in hosiery, such as the light rendition, Plaza Beige. This shade and other smart beiges provide smart harmonizing notes with the various new beiges in light browns in costumes and serve as well as neutral complements to many other spring colors.

A list of the new colors, with short descriptions are as follows: Glamour, a sparkling golden tone; Carib, a coppery hue with a rosy glow; Cubitan, a new leather type of tan; Dalmatian, a radiant copper; Plaza Beige, a warm light beige; Swanky, a subtle medium beige; Cona, a lively dark beige, Noonday, a subdued grayish beige; Avenue, a medium neutral beige and Moondusk, a medium grey of taupe cast.

Hearing on Cotton Imports

Reporting October hosiery imports for consumption at a new high level of 322,559 dozen pairs, of which Japan supplied 80 per cent, the National Association of Hosiery Manufacturers calls attention to the hearing set for January 12 by the United States Tariff Commission on this question of cotton hosiery imports. The figures supplied by the Department of Commerce also show that for the first 10 months of this year the imports of all types of hosiery amounted to 2,076,598 dozens. This amount is three times the volume for the same time in 1935 and is double that of the whole year of 1929. In the October figures, Japan contributed 258,998 dozens, practically all of which were of cotton content.

Outerwear Manufacturers Rushed and Prices Higher

With outerwear mills busily engaged on seasonal duplicate orders and others active on 1935 bathing suits, constantly advancing wool and yarn prices are stimulating interest in next spring's lines. Those mills that have already been showing lines for next spring in men's coats are finding wholesale buyers ready to operate liberally for that season. Initial orders for the new season are running much larger than a year ago. Mills now are advising agents of advances amounting to as much as 10 per cent over the first prices, these advances applying likewise to better qualities of men's worsted swim trunks and zipper suits. Manufacturers now buying yarns are compelled to pay 20 cents a pound more than a few weeks back and state that they cannot cover for quantities wanted even at these new prices, in some instances only obtaining about one-quarter of the amount needed. In the buying so far noted, the button-front is more popular in sweaters for men and fancy Jacquard patterns are selling in highly colored plaids.

Advances have been general recently among mills making bathing suits and trunks. Some lines of worsted trunks have gone up 50 cents a dozen on the 100 per cent goods and 25 cents on the 50 per cent. Others have advanced only an average of 5 per cent. Large mills making fall numbers of worsted sport coats followed different policies regarding the balance of the season. One leading knitter raising prices $1.50 a dozen. The advance in the worsted swim trunks are due to higher worsted yarn prices as well as wage increases. Salesmen who have been on the road for next spring have found wholesale buyers ready to operate in a liberal way. These firms, as a rule, have had a good fall season in outerwear and will finish with small stocks.

Several of the mills making sweat shirts have begun to quote prices for the first month of next year. One well-known line is being offered for January-February delivery at $4.87½ a dozen for men's silvers and peelers and $5.00 for the same with "V" insert in the neck. These prices represent an advance of 25 cents a dozen, although some mills are now up to 50 cents a dozen over early quotations this fall. There is still a large volume of business to be placed in polo shirts for next season and though prices are advancing buyers feel that something new may appear in the style line about the first of the year. For this reason they have not placed all of their business yet.

Japan Supplants United States as Largest Rayon Producer

Based upon figures published by the Japan Rayon Association covering output for the first ten months of 1936, Japanese rayon production this year will exceed United States production, according to the *Rayon Organon*, published by the Textile Economics Bureau, Inc. Thus Japan will have passed the United States as the world's largest producer of rayon, a position which has been held by the United States since the World War.

Japanese rayon yarn production for the ten months to October totaled 221,800,000 pounds against 164,060,000 pounds in the corresponding 1935 period, a gain of 35 per cent. Projected to an annual basis, the 1936 Japanese rayon yarn production might approximate 275,000,000 pounds, and the rayon staple fiber an additional 50,000,000 pounds, totaling 325,000,000. United States output for 1936 will show a gain over the 1935 output of 257,557,000 pounds, but the total will be substantially short of that expected from Japan.

According to the *Organon*, a recent study indicates that the annual capacity of the entire rayon yarn producing industry in this country as of November, 1936, amounts to approximately 325,000,000 pounds based on 150 denier

Directors of Full-Fashioned Hosiery Association Elected

PHILADELPHIA.—The Full-Fashioned Hosiery Association, Inc., at its annual meeting December 15, at the Manufacturers and Bankers Club here, elected 15 directors to serve during the coming year. This association is the largest of its kind in the industry and it is generally known a the non-union group. The new directors are: C. Hunter Biehl, Busy Bee Hosiery Co.; R. K. Boazwee, Julius Kayser & Co.; Laurence H. Greenwald, Interstate Hosiery Mills; J. Lloyd Keller, Chalfont Hosiery Mills; Joseph P. Kelly, Torresdale Hosiery Mills; William Meyer, Apex Hosiery Co.; Marshall V. Moss, No-Mend Hosiery Co.; C. F. Rodgers, Rodgers Hosiery Co.; Stanton D. Sanson, Ajax Hosiery Mills; Harry Schoenhut, Oscar Nebel Co.; J. C. J. Strahan, Strahan & Co.; F. Ellwood Struve, Apex Hosiery Co.; John H. Vogt, Nolde & Horst Co.; Clarence V. Williams, Federal Knitting Co.; and Alfred Zabel, A. Zabel Silk Hosiery Co.

Dispute of Ringless Hosiery Patent Unsettled

PHILADELPHIA.—Negotiations which have been under way for several weeks for an out-of-court settlement of the ringless hosiery patent dispute, have been terminated unsuccessfully. Suit for alleged infringement of the Kaufman Patent, postponed several times, will therefore come before the Federal District Court here as scheduled on January 11. Trade expectations that the two powerful groups of full-fashioned hosiery mills on opposing sides of the ringless patent situation would be able to reach a peaceable settlement have disappeared and confirmation has come through an official announcement of the termination of negotiations between the two groups. It is understood in the trade that the opposition group, which denies the validity of the Kaufman Patent and objects to some of the terms on which licenses under it are offered, felt that a new proposition submitted to it by the Textile Patents Corporation, licensing agent for the patent owner, did not provide equal terms for prospective new licensees and for members of the "inner group". William R. Smith, of the Textile Patents Corporation, stated the negotiations had been ended and would not be resumed. The case scheduled for January 11 is the suit of Textile Patents Corporation and Julius Kayser & Company against the Rosedale Knitting Company of Reading.

yarn, but, it is added, it is important to distinguish between capacity in November, 1936, and production for the year 1936.

The study mentioned also indicates that only a very small increase in capacity will be in place by mid-1937. By the first quarter of 1938, the new capacity now planned will bring the total up to slightly over a 400,000,000-pounds-a-year basis. This would amount to an increase of about 25 per cent over the present figure. It should be noted that, while this figure represents the summation of present intentions of producers, the demand for rayon will continue to grow normally during 1937 and 1938 and further aggravate the present yarn shortage. Summarized, it might be stated that, though the projected 1938 capacity may seem large, possibly it may be viewed simply as a delayed estimate of rayon's true, increasing place in the textile industry.

Shipments of non-acetate rayon yarn by American producers during September, October, and November were in excess of production, resulting in a substantial reduction in surplus stocks. November shipments again exceeded production, and surplus stocks at the close of the month were at a new low level at an 0.2 month's supply.

The situation regarding surplus stocks, moreover, was further accentuated by the reduction in acetate yarn supply due to a strike. The viscose and cuprammonium yarn divisions continue to show a record low-stock position, a record high production rate, and no indication of relief from this situation for over a year on the basis of available supply.

Higher Prices Soon According to Underwear Manufacturers

The consensus of opinion among underwear manufacturers of New York, Vermont, and Ohio, was that higher prices will be seen soon as a result of government regulation of hours and wages. The underwear manufacturers of these states held a conference with Roy A. Cheney, managing director of the Underwear Institute. About 25 representatives were present at the meeting.

Underwear Manufacturers Advance Prices of Spring Lines—1937 Heavyweights Wanted

Early in December large underwear mills withdrew their prices on spring lines and later re-instated them at advances over the opening prices. The advance amounts on the average to 7½ per cent on knit cotton numbers. Cheaper athletic shirts, for example, are 10 cents a dozen, the advances being higher in proportion for the better numbers, with the knit union suits up 25 cents a dozen. With 7½ per cent representative of the advance in men's spring knitted numbers, buying interest slowed down for a time. For one thing a larger percentage of wholesalers have by this time covered on spring underwear for the start of the season and salesmen have observed that most of the buyers have operated heavier than usual for the start of the season.

With advances such as these going into effect on men's lightweight numbers, a similar trend is expected shortly to develop on the part of mills making women's cotton numbers, as well as those making children's goods. The combed yarn situation, with prices there up 2 to 3 cents in the last month, necessarily effects these mills just as it does those making men's combed athletic shirts. The underwear market is now looking ahead to the fall season of 1937, the present situation being something like a jockeying for a start among such manufacturers, especially those making men's cotton ribbed numbers, the most highly competitive part of the industry. But the fact is, the start has already been made, several manufacturers having booked initial business for these lines. The pressure under a current rising market, coming from buyers, who want to get in early on that season, has been heavy on mills and hard to resist under the circumstances, it being natural to want to sell when buyers are most anxious to operate.

It is quite generally accepted that some mills have already booked fall 1937 business in the staple cotton ribbed numbers and it is clear that it was taken on the price basis of the first three months of next year. Buyers not only among the chains, but in the wholesale field, have shown a willingness to consider operating in such a way, that is, covering the first months, rather than the whole fall period. Outside of the interest for next fall, the current heavyweight season is proceeding smoothly with wholesalers just as anxious to get deliveries as ever this late in the year. From the outlook, there will be a large volume of winter underwear sold over the retail counters for some time to come and in addition to this, manufacturers should realize that wholesalers will keep up their stocks later than usual for another reason, because they foresee higher quotations next fall.

While underwear mills making seasonal cotton numbers for men and boys are, for the most part, unable to take further business for delivery before the first of the year, selling offices are from day to day receiving instructions from mills to advance prices further. The men's ribbed union suits, for example, that sold early in the year as low as $5.62½ a dozen, have gradually been advanced to $5.87½, then $6.00, and now agents are being advised that $6.12½ is the lowest price that will be accepted for the deliveries still open. Some mills, in fact, are insisting that their lowest price for this number is $6.25. Such prices are looked upon as indicative of what this market will open at for the next fall season. While some large orders of this kind have already been put through for that season, sentiment is for delaying the regular opening until the first of the new year.

In addition to the men's fall numbers, there has been some business closed already in women's numbers for next fall. Goods like women's 8 and 10-pound bleached union suits as well as snuggies, are the number concerned in this buying, mostly on the part of chains. Prices so far reported in connection with this are given as slightly above those ruling this year on the same goods.

There has been a return of interest this season in some of the older types of both men's and women's underwear that for some time have been classed in the old-fashioned type that apparently would never have a comeback. It has been noted that the actual demand for men's fleece-lined cotton underwear for example, has seemingly been larger this fall than for a long time. Likewise some of the largest wholesalers find that they can sell more of the heavy 8 and 10-pound cotton union suits for women than for years. These garments made in the old style of high neck, long sleeve ankle, or Dutch neck, were quite generally classed as *passe* by most of the market but the business in them this fall has increased in a significant way. Wholesalers, in touch with popular demand, feel that colder weather of recent years, combined with more money in the pocket books of consumers to buy heavy underwear of this kind, may have an important bearing on the present revival.

Showing a gain in production for October this year over last in knitted cotton or wool underwear and an increase in shipments, the underwear industry is making progress towards a record year. In some lines of knitted cotton wool or mixed underwear, production this year is expected to be 40 per cent ahead of last year. In the rayon field, production of garments from purchased fabrics are also running considerably ahead and men's and boys' athletic shirts show a substantial increase.

Hosiery Shipments by Major Branches
(Dozens of Pairs)

Type of Hosiery	First Ten Months 1936	1935	Per Cent Increase 1936 over 1935
Women's full-fashioned	29,664,702	28,417,573	4.4 per cent
Women's Seamless, excluding wool	10,384,658	8,942,135	16.1 per cent
Men's half-hose, excluding wool	29,510,111	27,189,625	8.5 per cent
Children's and infants' hosiery	5,438,528	4,970,520	9.4 per cent
Anklets	15,042,817	12,538,329	20.0 per cent
Cotton Bundle Goods	3,474,570	3,348,566	3.8 per cent
Ribbed Goods	3,714,957	3,223,988	15.2 per cent
Woolen Goods	3,569,939	3,757,965	—5.0 per cent
TOTAL, all types	100,800,282	92,388,701	9.1 per cent

REVIEW OF THE YARN MARKETS

Heavy Demand for All Types of Yarns. Cotton Spinners Experience Record Boom.

Philadelphia, Pa., December 16, 1936.

ALL type yarns are in the midst of a contra-seasonal boom with manufacturers seeking to cover their needs farther ahead than for years past. The old inventory policies where hand-to-mouth methods were in vogue have been discarded and some yarns have been contracted for until past the middle of 1937. Rising prices, higher wages being paid in many sections of the industry and the fear of buyers, particularly those using cotton yarns, that they will not be able to obtain all the yarns needed next year, have been factors in bringing about the present boom.

Cotton Yarns

Last month some buyers withdrew, having felt that they had covered far enough into the future with first quarter of 1937 contracts placed but the receipt of a larger volume of goods orders for next year in various types of cotton goods, has brought most of these mills back into the cotton yarn market for large amounts and at ever-advancing prices. Spinners in many cases have sold their output during the first quarter of next year and while many refuse to quote for the second quarter those that have been doing so assert they have no trouble selling at higher prices. Demand exceeds the supply and veteran traders say they do not recall such an active market in fifteen years.

Raw cotton has been strong during the last month though the final government crop report issued December 8 indicated 12,407,00 bales or more than 1,000,000 higher than predicted last September. Heavy consumption is the reason for the firmness.

Although all cotton yarns have been in exceptionally active demand this month with deliveries on old contracts at a record level the feature of the sales yarn market has been the call for carded weaving yarns. In these there is an actual shortage, many spinners being unable to make any further deliveries for the next three to four months although all manufacturers, especially those making cotton plushes, want to place orders. This scarcity of weaving yarns has been due to the heavy expansion in sales of house furnishings, such as draperies, carpets, furniture, towels and such merchandise, which was dull for so many years. Now makers of them are far behind in deliveries which is reflected in yarns.

As indicative of the rapid price advances which have occurred during the last month: carded numbers have advanced about 3 cents with cotton in the same period advancing on the futures market about three-quarters of a cent. 10s carded cones which were held last month at 25 cents are now selling at 28 cents; 20s two-ply warps which last month sold at 30 cents are now 33½ cents.

Combed qualities have advanced in the past month 2½ cents to 5 cents depending on the count. Single 30s which sold last month at 37½ cents have moved this week at 40 cents while 60s two-ply that sold last month at 56 cents have moved at 60 cents. Mercerizers seeing prices of combed advance like this have put into effect a new price list for such yarns which is 2 cents to 3 cents higher than last month with 60s two-ply ungassed being held at 72 cents and assertions being made in the trade this new price will soon be upped.

Rayon Yarn Manufacturers Are Unable to Supply Current Demands

Producers of viscose type yarns opened their books for February delivery orders at the beginning of December and within two days certain of the larger sellers stated that they had sold the month's production, or allotted it because their customers wanted to buy considerably more yarn for shipment that month than was available. This was unusual because demand is usually quiet this time of the year but indications are now definite that instead of the usual decline in volume in December and January, there will be a contra-seasonal upturn so far as producers are able to handle this. The trade was surprised when no price inquiries was anonunced, predictions having been made that prices would have been increased for the February business.

The only price change to date was in the case of the American Bemberg Corporation early in December, making an upward adjustment in certain of its yarns in the finer deniers. The yarns on which the prices have been advanced by this company range from 40 denier to 120 denier in non-twist skeins and from 40 to 75 denier in converted yarn.

In addition to the heavy demand for yarns going into spring merchandise, some manufacturers are already busy on goods which will not be sold to the consumer until late 1937. An example of this is in knitted cotton and rayon underwear fabrics which are being made in volume at present, this being a standard fabric where no future style change can alter the picture. The trade feels that higher prices will develop next year and they are endeavoring to manufacture all of the goods possible where style does not play a part. This is not possible in the manufacture of rayon dress goods fabric, but manufacturers of these lines are busy on spring goods which the department stores will begin to show on their counters early in January with the season really getting under way at retail early in February. Weavers of dress goods fabrics are demanding 100 denier, 60 filament in larger quantities than can be made, while interest in 150 denier, 40 filament is also a leader, both from weavers and knitters.

Silk Strong and More Active

Although raw silk prices show no decided change as compared with a months ago, the market has been steady and statistically the outlook is for firm to higher prices. Estimates for silk consumption during November are between 42,000 and 45,000 bales. This figure is considerably above the previous month and November of last year, when silk consumption dropped to 37,-012 bales or about 11,000 bales below October; with imports of slightly over 50,000 bales, warehouse stock figures increased 10,000 bales to above 40,000 bales on December 1. However, the in-transit was several thousand bales lower. The outlook is considered bullish aside from these statistics because of a heavy consumptive demand now coming from hosiery and other goods manufacturers.

Worsted Yarn Prices Jump to Rapid Upturn

Worsted yarn prices following wool and tops upward have advanced 10 cents to 15 cents a pound during the last month, one of the most rapid upturns that has been seen in years. Buying was heavy at the beginning of the upturn late last month but more recently with spinners well sold ahead new poundage has fallen off, spinners having about three months' business in hand. This is about all they want for the present.

Weavers making men's wear and dress as well as outerwear manufacturers are rushed making goods deliveries and they are demanding yarns at such a fast pace that spinners as a rule are operating at full time rates though normally at this time of the year demand is poor. Many spinners in view of the excited trading in wools and tops have withdrawn their prices for the time being, saying they have all the business they can handle for the present and they want to wait to see what is ahead before they make new commitments without knowing what they will have to pay for wools early next year.

Indicative of the rapid advance in prices spinners ask $1.30 for 2-20s, 50s, Bradford, which last month sold at $1.15 to $1.20; 2-30s, 64s, men's wear mixtures have advanced from $1.65 for Bradford spun to $1.90, these yarns having staged the most drastic advance of any in the market due to higher dyeing cost in addition to advances which have occurred in fine wools and tops. On yarns such as 2-50s prices have advanced at least 20 cents a pound in the last month which has been a very rapid increase in such a short length of time and some in the trade are concerned as to how manufacturers and consumers will accept this drasticaly increased price level.

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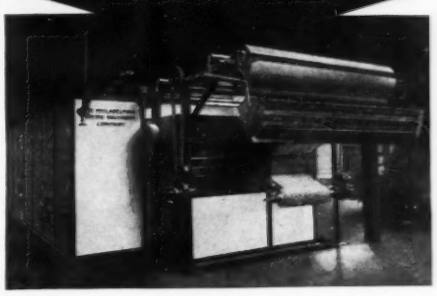

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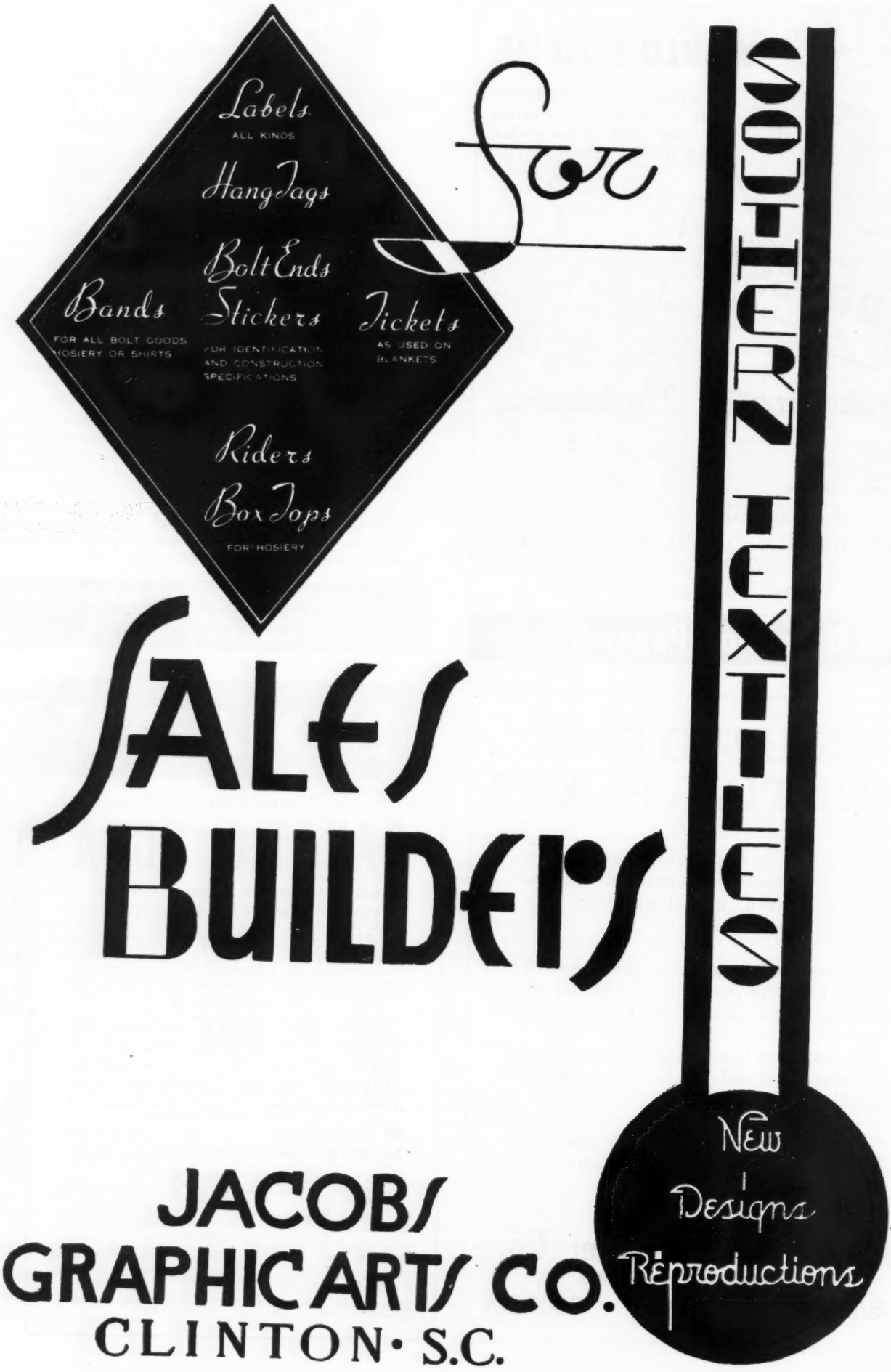
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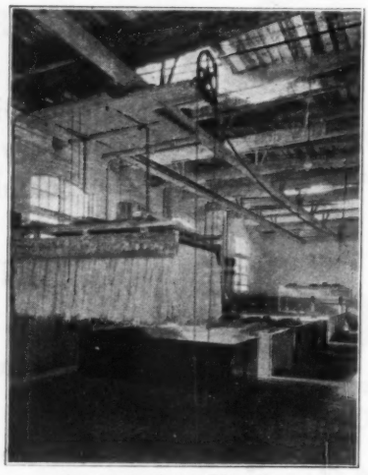

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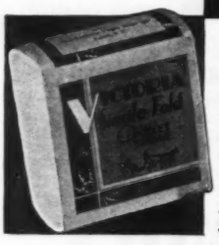

VICTORIA DOUBLE FOLD
White, manila or full bleached. 800 interfolded sheets per package, dispensed two sheets at a time from cabinets. 125 packages per carton. 3 sizes: 4 x 5¼, 4½ x 5¼, and 5 x 5¼. (*See right*)

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The book covers, generally, those basic raw materials used in the finishing processes for cotton piece goods. It includes a number of the newer materials and practices which cannot be found in any standard textbook.

In addition to, and in connection with, a discussion of the uses of these materials in the plant, the author has given, interestingly, something of the source, background and production of these finishing agents.

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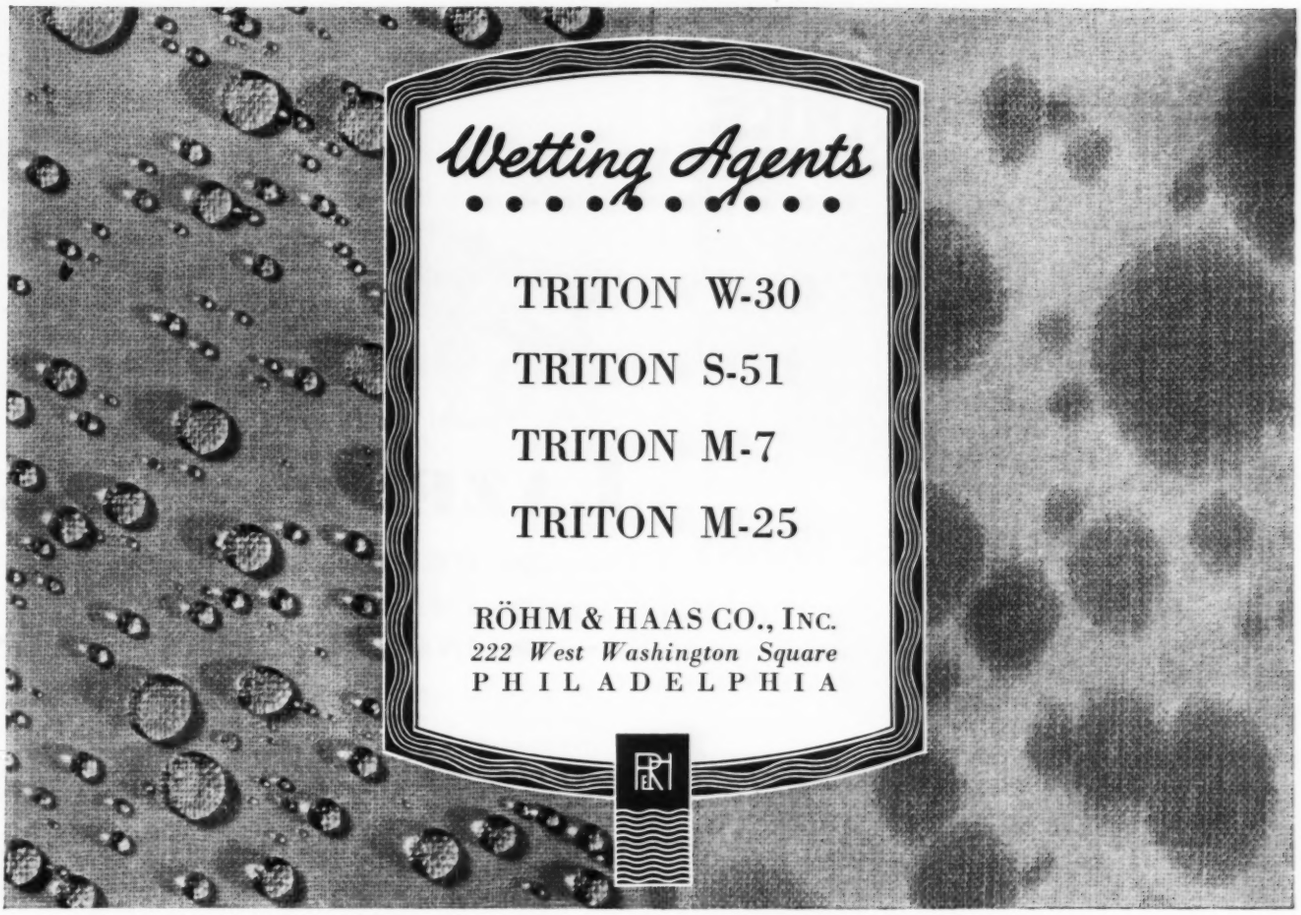

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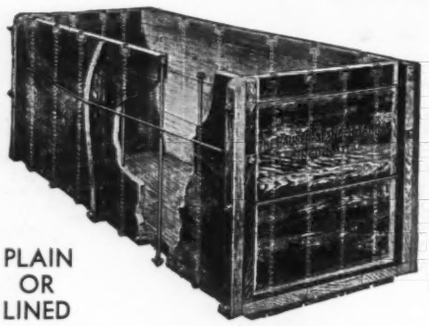

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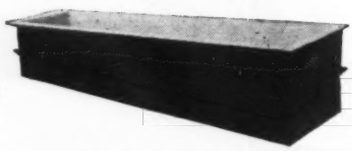

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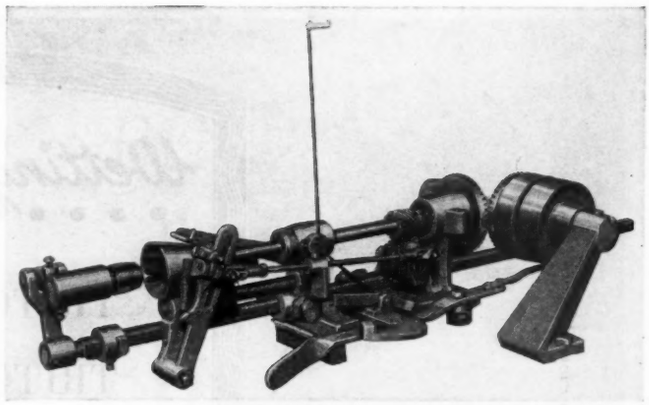

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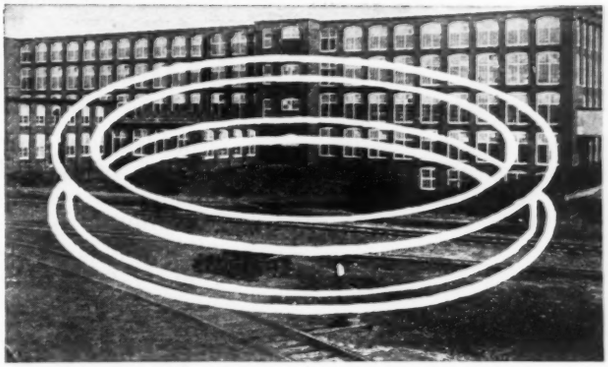
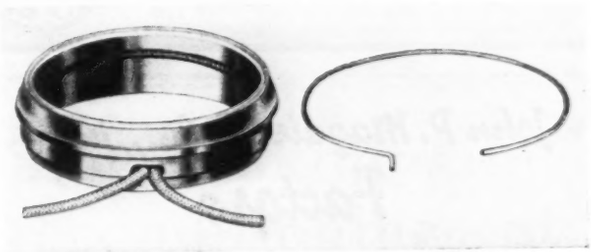


A quick, low-cost way to increase yarn production

On frames with worn rings, there is easily a 10% to 15% Ring Drag loss in reduced speeds or excessive ends down. Within a short time, at small cost, you can be *selling* this extra 10% to 15% more yarn through the simple step of installing new DIAMOND FINISH High Polish rings.



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On your twisting or wool spinning try our Eadie Ring

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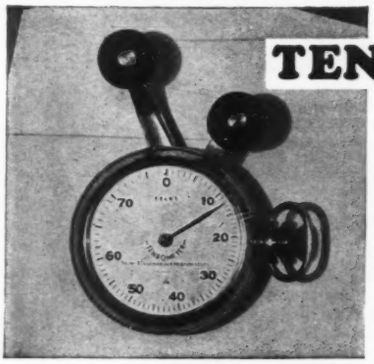
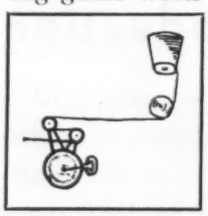


TENSOMETER

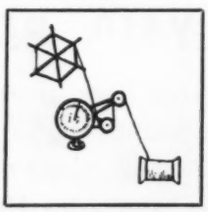
Enables your workers to avoid faulty tension in warping, winding or quilling, eliminate seconds and increase loom production.

A GIFT Suggestion For The Boss

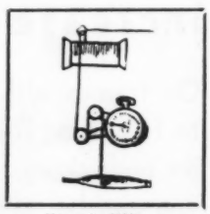
Why not reward your ambitious mill men with a tensometer and start the New Year right eliminating guess work on tension?



For Warping



For Winding



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Other popular Sipp-Eastwood machines include oilless bearing winders, horizontal and direct beam warpers, quiller tensions, redraws and other yarn and warp preparatory equipment.

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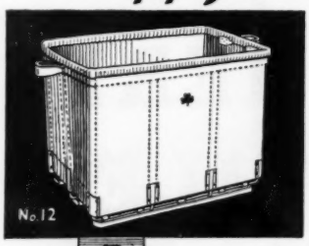
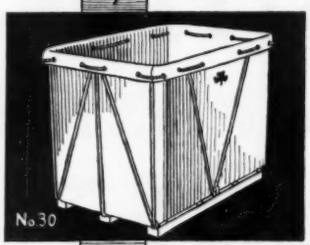
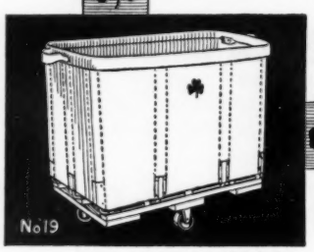
A Happy New Year Ahead

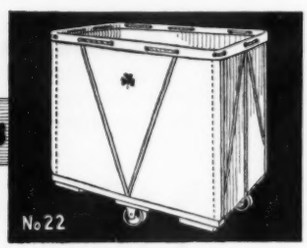
with

SHAMROCK BASKETS & TRUCKS









Out with the old . . . In with the new. Old and worn-out equipment will have no place in the happy New Year ahead.

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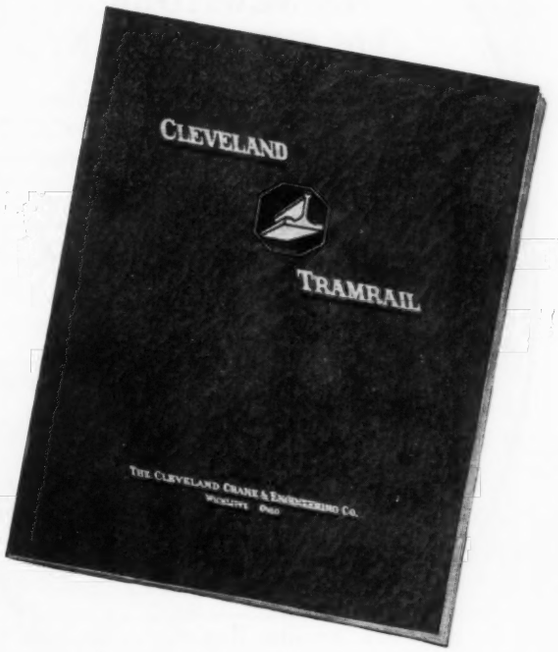

● In a bound group of folders is outlined the basic engineering principles and main structural reasons Why Cleveland Tramrail has received general acceptance as the "Pioneer" of Overhead Materials Handling Equipment. Over 3500 Satisfied Users and Eighteen Years of Pioneering Development prove our claims of leadership and acceptance by industry.

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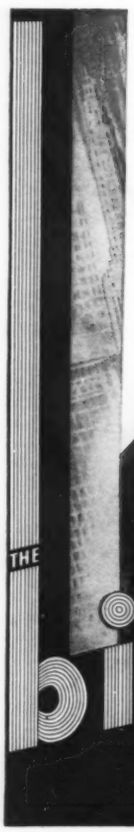

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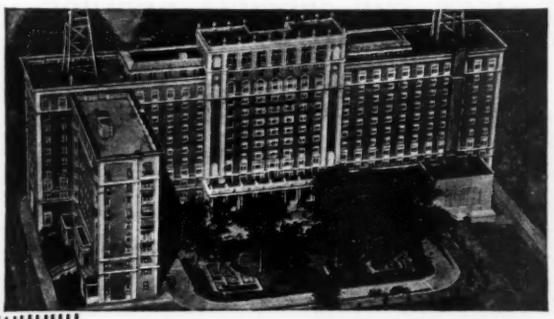

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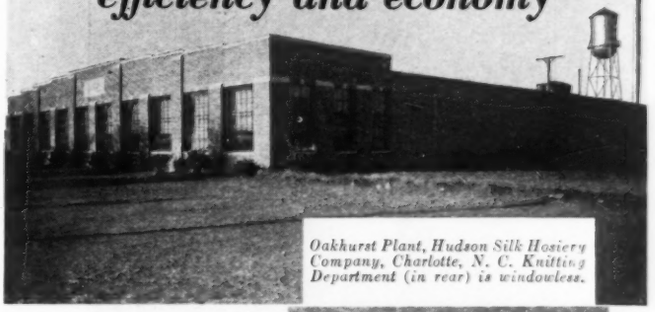
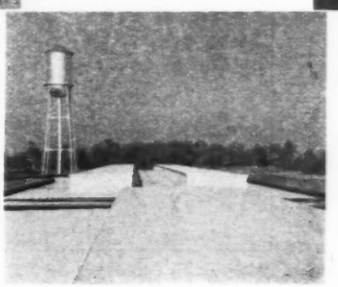
HUDSON HOSIERY MILL INSULATED WITH CORK

for maximum air conditioning efficiency and economy



Oakhurst Plant, Hudson Silk Hosiery Company, Charlotte, N. C. Knitting Department (in rear) is windowless.

In this new air conditioned mill Armstrong's Corkboard Roof Insulation helps provide accurate temperature and humidity control . . . prevents ceiling condensation.



Roof of the plant insulated with Armstrong's Corkboard to help assure perfect "in-door" weather.

EXECUTIVES of the Hudson Silk Hosiery Company know how important adequate insulation is to air conditioning efficiency. Accordingly, when constructing their air conditioned textile mill at Charlotte, N. C., they used Armstrong's Corkboard to insulate the entire roof area.

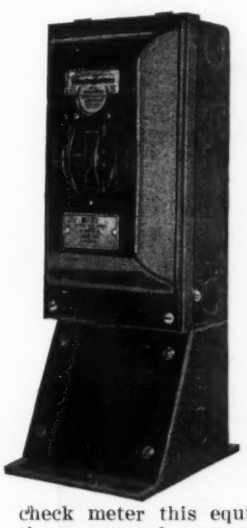
Today, actual records from a year or more of service prove the wisdom of their choice. During the summer months temperatures inside the mill were 10° to 12° F. cooler than the outside average. During the winter, temperatures consistently averaged 83° F. with 68% humidity. Armstrong's Corkboard Insulation checked ceiling drip and sweat and helped to keep air conditioning costs at a minimum.

Thanks to the natural cell structure of cork, Armstrong's Corkboard forms an effective barrier to the passage of heat and moisture. It provides *long life* insulating efficiency. And Armstrong's Corkboard assures *continued* savings on operating costs.

In textile weave rooms, where high humidity conditions are maintained, an adequate thickness of Armstrong's Corkboard will effectively and economically prevent condensation and also provide the other advantages of well insulated construction. For more complete information about this dependable insulation, write today to Armstrong Cork Products Co., Building Materials Division, 923 Arch Street, Lancaster, Pa.

***Armstrong's* CORKBOARD**

A SMART TEXTILE MAN RESOLVES—



"Knowing that overconsumption of power by looms is proof positive that something is mechanically wrong which, not only costs me money in wasted power, but unchecked will lead to serious breakdowns and loss of production, I therefore resolve to install the Walker method of periodic power consumption tests, because:

1. **The cost of equipment, installed, is negligible.**
2. **It takes only a minute or so for each test.**
3. **Results — money saved, waste prevented, breakdowns stopped before they start."**

Illustrated — Switch mounted on a Walker switch pedestal with test block in base. Used with our inexpensive loom adjustment check meter this equipment places at your finger tips the means of preventing serious losses in production time and power consumption.

Ask us for more details today.

WALKER
ELECTRICAL COMPANY
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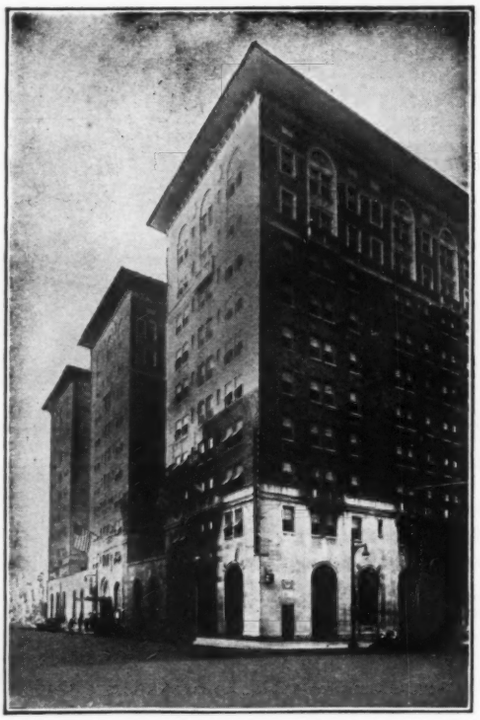

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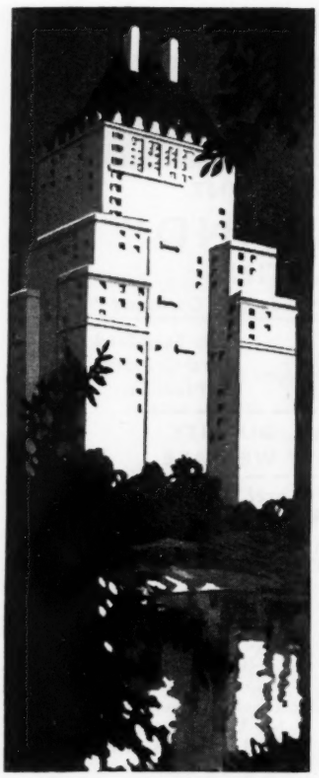

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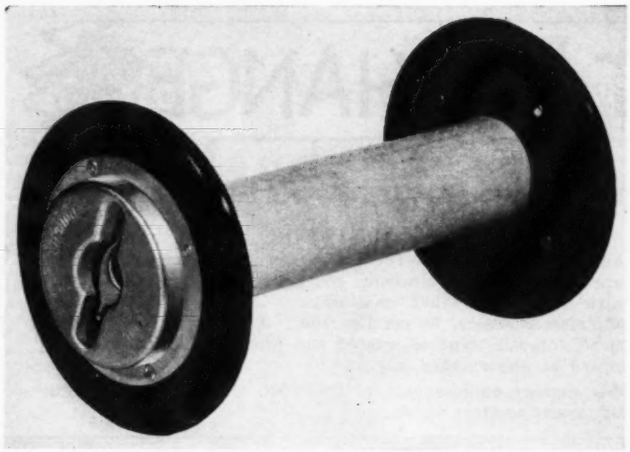

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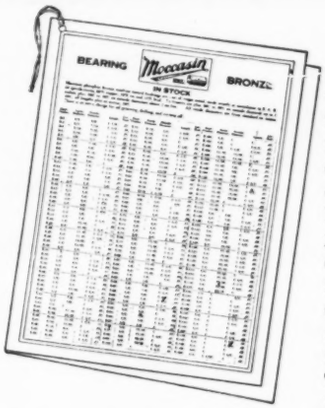

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